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FINANCIAL TIMES

No. 27,285 Tuesday May 31 1977 *12p

Travis & Arnold Timber, Building Materials, Heating and Plumbing Equipment for the Construction and Allied Trades. Northampton 52333

CONTINENTAL BELLING PRICES: AUSTRIA S.15; BELGIUM F.25; DENMARK K.3.5; FRANCE P.3.5; GERMANY DM2.0; ITALY L.800; NETHERLANDS F.2.0; NORWAY K.3.5; PORTUGAL B.20; SPAIN P.40; SWEDEN K.3.25; SWITZERLAND F.2.0; ERE 12p

NEWS SUMMARY

GENERAL Smith roops destroy bases Equities fall 5.3; Gold index up 8.4

Equities continued the recent drift. FT 30-share index receded 5.3 to 447.5... Gold index up 8.4

Smith roops destroy bases. The Dutch hostage drama entered its second week...

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Morpeth may delay inflation accounting plan by six months

Implementation of current cost accounting faces serious delay. The Morpeth Inflation Accounting Steering Group is expected to announce to-day that it is considering postponing by at least six months, until January 1 1979 at the earliest.

Occidental to go ahead with £200m. oil refinery. Petroleum, have questioned the need for new refineries, BP has said that there is no justification for a basic new plant being built in Europe before the mid 1980s.

No evidence horse racing needs extra money, says report. AN EVE-OF-DERBY shock for the racing industry comes to-day in a report from the Economist Intelligence Unit which says that on balance, there is no evidence that prize-money is inadequate, nor that the sport requires extra funds from outside.

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Surprise £800m. issue of tap stock

THE gilt-edged market was taken by surprise last night with the announcement by the Bank of England of a further £800m. issue of conventional fixed-rate Government stock.

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GWU will fight Bullock within TUC

Britain's third largest union, the 916,000-strong General and Municipal Workers, is to campaign within TUC to prevent the Government drawing up a Bill which will give blanket statutory backing for union worker directors on company Boards.

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1st Department

Arthur Bell & Sons Ltd. Estd. 1825 - One of the few independent companies left in the Scotch Whisky industry

BELL'S SCOTCH WHISKY. To specialise in... are designed... of those... or British... two centuries of... national is... there is no... the Scotch of the year and every year since 1825

LOMBARD

Pound in your pocket, again

BY SAMUEL BRITTON

ACCORDING to the official Whitehall view, frequently given in Parliamentary Answers, a 10 per cent devaluation of sterling leads to a 24 per cent increase in domestic prices. This is the foundation for the famous belief that "the pound in your pocket" does not fall as far as the external value of sterling in any depreciation. It is also the foundation for the belief that the exchange rate should be managed to give British goods a competitive edge.

Table with 3 columns: Impact of 1 per cent devaluation in U.K., On Consumer Prices, On Relative Price of On Traded Goods. Rows include Simple case, Assuming wage indexation, and Source: "Optica Report," P.20 EEC Commission, February 10, 1977.

monetarists maintain that a 10 per cent sterling devaluation leads to a 10 per cent increase in British prices. It does not follow that prices and profits are unimportant in export markets or that policy must concentrate on "non-price" competitiveness.

The impact

It is far from true that real wages can rise or fall by the same amount as the exchange rate. The impact of a 10 per cent devaluation is to raise profit margins on traded goods by 2.2 per cent. But this is unlikely to result in profit margins being unusually depressed in the first place and devaluation provided a tactical opportunity to reduce the share of wages. But in the context of a continuing depreciation, wages would quite soon rise to eliminate the profit boost. Even if unions did not resist competition among employers would do this.

Raises prices

The EEC estimates are, like the British Treasury's, based on calculations of the direct effect of exchange rates on costs via import prices. The main difference is that while the British calculation is confined to imports, and the import content of domestic products, the EEC ones assume that all tradeable goods are affected, under the influence of market forces, and in particular import substitutes. But even on that basis, which assumes that non-tradeable goods are unaffected, a 10 per cent devaluation raises prices by 4.7 per cent.

RACING BY DOMINIC WIGAN

Ladbroke's Leisure can provide an apt winner

Ladbroke's Leisure, which runs in the colours of Sloane and has made only three appearances to date. A promising third behind Celtic Pleasure and Lucky Runner in a maiden event at Newmarket early last month, Ben Hanbury's gelding then ran somewhat disappointingly. It faded to finish sixth in a similar event at Nottingham, before springing a surprise with a 23-1 victory in Bath's West Littleton Stakes.

- Ladbroke's Leisure*** 2.00-Heddingham Boy** 2.30-Hill Station 3.00-Fine Blue 3.30-Last Tango 4.00-Ladbroke's Leisure*** 4.30-Swallow Prince**

both gained compensation with comfortable successes. Lord of Mistrule won his race when defeating Rapid, by two lengths in a Brighton handicap and Tobique had a 11-length victory over Tanaka at Salisbury a week ago. The form of the Bath race could hardly have worked out more impressively, and it will come as something of a disappointment that Ladbroke's Leisure, again ridden by the highly accomplished 54b claimer Richard Muddle, cannot give weight and a beating to his three opponents, Lady of York, Naughty B and House Breaker.

SALEROOM BY ANTONY THORNCROFT

£2,400 for Lambeth Delft

AFTER excitement at Montmore and Christie's first auctions in New York the London salerooms returned to normal yesterday with modest sales. At Christie's English pottery and Wedgwood realised £30,118 and Japanese swords and sword fittings £24,488. Among the pottery, a rare Lambeth Delft inscribed portrait tankard was sold for £2,500, double the top estimate. A Wedgwood Basalt model of Hogarth's dog, Trump, went to the London dealer David Newton for £1,900. The same buyer paid £1,300 for a large Wedgwood creamware armchair.

TV film on Darwin soon

FILMING of a new six-part historical five-year voyage round the world. The square-rigged sailing ship The Marques has been refitted to resemble the original HMS Beagle. She is jointly owned by Mr. Robin Cecil-Wright and Mr. Mark Litchfield, and will sail to South America and the Galapagos Islands.

WINE

Champagne—is it too expensive?

EDMUND PENNING-ROWSELL

THE SHORT ANSWER to this question is that champagne has not really drunkable for years, and the co-operatives for the first time sold 20m bottles with a grand cru 75 red or white burgundy will cost a good deal more.

For many years we in Britain enjoyed specially low prices from most of the exporting champagne shippers, partly at least because for a couple of centuries we had been the leading foreign market. British merchants and agents were accustomed to pay less for their supplies than their French counterparts.

When we describe commodities or other things we buy as expensive, we often mean, I suggest, that they are unreasonably dear. Coffee, for example, at current prices, is this the case with champagne?

It is, of course, an exceptionally costly wine to make. Yet, when it is good, none of its rivals, even when made in the same way, the methode champenoise, can equal it in aroma, flavour and elegance. Then, champagne grapes are among the most expensive in the world, and it takes about 14 kilos to produce one bottle of champagne, at a price per kilo averaging not less than 75p, and more for some of the top quality wines. So that is a prime cost of over £1 before production starts.

Minimum

Then there is the period of secondary fermentation in bottle, a prolonged maturation, and the expensive, highly skilled manual operation of the remuage, in which the sediment is gradually shaken down on to the cork. Finally the wine is disgorged of this sediment and the relative dryness or sweetness, is added, and the bottle dressed and packed for despatch.

Although, under French regulations a bottle of non-vintage champagne must have a minimum of one year's bottle age, and a vintage one three years, all the leading houses give their non-vintage a minimum of three years, and present the average throughout Champagne three years.

Nevertheless champagne cannot be considered as a fine quality French table wine at present they are good for money. For example, already much-in-demand rank classed-growth clarets

APPOINTMENTS

- Mr. J. Campbell Fraser, managing director, is to be succeeded by Mr. V. E. Thomas... Mr. S. H. Leckie and Mr. G. White have been appointed directors of the PIONEER MUTUAL INSURANCE COMPANY... Mr. D. S. Clayton retires from the Board to-day and Mr. J. Roberts, agency manager, retires on June 30.

Table with 2 columns: Time, Program Name. Includes Nationwide (London and South-East only), 6.20 Nationwide, 6.50 Jubilee, 7.00 Sixes, 8.10 7 Cars, 9.00 News, 9.25 Last of the Summer Wine, 9.35 Soccer Special: England v. Wales, 10.55 10-night, 11.35 Politics Now—The Lonliest Job, All Regions as BBC-1 except at the following times: Wales—8.55-9.20 p.m. Wales Today, 9.30 Reddew, 7.10-7.40 Ar y

WORD PUZZLE No. 3,394

Word puzzle grid with numbered squares for letters.

- ACROSS: 1 One who anticipates woodman will admit everything (11), 2 Material to get on to, to understand (6), 3 The beginning of electrical phases (5), 4 Where one may see the vicar burning paper outside (9), 5 Keep Henry in agreement—at once (8), 6 Small in a way but charming (5), 7 Grave to change and exaggerate the performance (7), 8 Doctor going to work needs a drink (4), 9 Southern pitch for leading in player (4), 10 Crumpet and fish with bad service (7), 11 Humiliate with just one blow (5), 12 Influence of personality that is an attraction (8), 13 Record words with English speech (9), 14 Drink about four to become alert (5), 15 See 7 across, 16 Good had poetry for printing (11), 17 Low arch in copper (4+4), 18 Provided copy about wine to editor (3), 19 Cut left in window-frame (5), 20 Assign to a soft objective (7), 21 Enticed to go round church but stumbled (7)

SOLUTION TO PUZZLE No. 3,393

Solution to puzzle No. 3,393 with letters filled in the grid.

Table with 2 columns: Time, Program Name. Includes HTV, 1.20 p.m. Report West Headlines, 1.25 Report Wales Headlines, 2.00 Houseparty, 2.20 The Professor, 2.30 Patrick Wood, 3.15 King The Crown, 3.20 Crossroads, 3.30 Report West, 3.35 Report Wales, 3.50 News, 4.00 Happy Days, 4.20 Six Mill on Dollar Man, 4.30 Elaine, the Singer of the Song, 4.45 News, 4.55 HTV General Service, 5.00-5.15 p.m. Penetration, 5.15-5.30 p.m. Dr. D. M. Mawr, 5.30-5.45 p.m. Great Little Trains of Wales, 5.45-6.00 p.m. World in Action, 6.00-6.15 p.m. HTV General Service, 6.15-6.30 p.m. Report West, 6.30-6.45 p.m. Report Wales.

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Lively death throes

by NIGEL ANDREWS

Order, some one said in one of the wittier movie lines of the Cannes Festival, in the virtue of mediocre minds. If that maxim holds good for film festivals, there was nothing remotely mediocre about Cannes 1977. Profusion and confusion reigned from the very beginning, and film distributors, film producers and other interested parties could thank the inclement heavens, and the tightened belts of the festival organisers, that neither the weather nor the exceptionally frugal social calendar offered any serious competition to the exhausting schedule of filmings.

If the cinema is dying, as widely rumoured of late, it is certainly treating us to some lively death throes. In the meantime, I commented in my first report on the heady internationalism of this year's Festival—every country from Kuwait to Venezuela was represented—and no less inspiring was the range of subjects. There have been

aptnoise and anti-pollution demonstrations against it, and it can thus be seen as yet another dead and weighty stratospheric slung around the neck of the new Japan by the old.

The film has been a tremendous success in Japan and I am not surprised. For one thing it carries an immaculate pedigree: scriptwriter Tetsuya Tamura worked on several of Oshima's films, and Hasegawa himself, whose first film as director this is, was formerly assistant to Oshima. For another, it boasts a richness of imagery and a vivacity of language that are at times almost Shakespearean. The murder scenes are astonishing—a dizzying blood-drunk dance of violence followed by the quiet horror of dawning guilt—and the film's strength throughout is that it works no less effectively on a visceral level than on a symbolic and philosophical one.

This was for me the film of the festival; and it reached the winning post well ahead of its

festival with a work-in-progress screening of selected clips. Those who have seen his *Luchino* will know what to expect—high-kitsch pageantry hand-in-hand with Brechtian exposition, all set against a sumptuous series of projected backcloths. But the greater contemporary of the subject may well inject a greater passion and urgency into this work; and the excerpts show certainly whetted one's appetite for the finished version.

The new films by Werner Herzog and Wim Wenders, by contrast, were disappointing. Both have looked to America for their inspiration, and both have failed to find it. Herzog's *Sirocco* tells the rambling tale of three disenchanted Berliners who set out to find fortune and freedom in the West. Herzog's America is a potentially hilarious melting-pot of backwoods, machismo and sleek exploitation who set out to find fortune and freedom in the West. Herzog's America is a potentially hilarious melting-pot of backwoods, machismo and sleek exploitation who set out to find fortune and freedom in the West.

Old Vic Hamlet

Prospect's new Hamlet seems to have begun as a commendably simple one, without many gimmicks, and then to have had all its emotions slightly boosted as if for an audience needing everything made doubly clear. Old Hamlet hands may find this occasionally tiresome, but now and then it throws beams of unexpected light on familiar scenes with most rewarding effect.

A good example comes in the first scene in which Hamlet appears. The Prince squats sulkily in a corner, ostentatiously paying no attention to the sensible things the King is saying. Suddenly the King gives a great clap on the table in front of him, and seeing that even this has not attracted his stepson's attention, he walks over and glares at him. This places the two most accurately into their relationship. But a moment later when Hamlet goes to the table and thrusts his application to return to Wittenberg to the top of the King's file, and when he shouts "Seems, madam!" at the Queen as if he were addressing the Court, I felt a touch of excess.

Hamlet is played by Derek Jacobi. He maintains his madness longer than is fashionable, even sitting down on the ground when he's being chased after Polonius's death, but gives a nice, consistent performance of a character that has clearly been thought through deeply. It is, though, most of all, who exaggerates the peaks and troughs of feeling so much.

One of the evening's gimmicks is to have Hamlet speak "To be or not to be" to Ophelia, toying with her while she, Mr. Jacobi speaks it as if asleep; but Ophelia's presence there is fatal, even though she is neatly played by Suzanne Bertish in a cool, intelligent maid that is quite fresh. Another gimmick is to start with a parade of the four chief characters, and the almost ruins the marvellous first scene. Queen, looking young enough to



Derek Jacobi and Barbara Jefford

Timothy West's Claudius is so justifying her second marriage, but outstandingly good that the play not sounding passionate enough, almost revolves about him rather than Hamlet. He is alternately forward performance by John Rowlands and a thoughtful, revealing what a dull Roman emperor. His simulated speaking in all the parts in indifference at the play is so beautiful suggested that I emphasised that I didn't agree with, hardly looked at the Players, my attention being all for the King.

The play is done on a permanent set that serves pretty well for everything from battlements to a throne-room with its tall grey columns; the designer is Robin Archer.

B. A. YOUNG



Shelley Duvall (back) with Sissy Spacek in Three Women

times when a critic could pick hesitation ensue, however, and in the film's second cinematic pull out a consistent thematic thread: revolution, or feminism, or pollution. This year it was the latter that did not predominate. There was less political tub-thumping than of yore; less sex; less of an avant-garde, experimental or "non-narrative" cinema.

Some of these diminutions were cause for regret. Who for example, has been cleaning up the film market? This event is usually rife with films rejecting in such titles as *Scrubland* and *The Snow White and the Seven Dwarfs*, which provide critics and festivalgoers with some welcome late-night diversion. This year someone has evidently come in with a new broom and swept all of it or most of it away. Are even film festivals not safe from the long arm and interfering scissors of the censor?

On the political front, however, the news is nothing but good. In the past few years, we have been bombarded with films bar describing themselves grim film's action takes place, is as freely as "weapons in the anti-imperialist struggle or calling call the enemies of the bourgeoisie oppression." Now, carefully, only every fourth or

several rivals. Bunched up if it was made up as the film went along, and the result is a languid, facile, disappointingly shapeless work.

Wenders' *The American Friend* is taken from a novel by Patricia Highsmith, whom filmgoers will chiefly know as the source of Hitchcock's *Strangers on a Train*. In Hitchcock's hands, Miss Highsmith's world of chance meetings, criminal pacts and guilt-infused were triumphantly realised. But Wenders is no Hitchcock and here, alas, he is Wenders either. The delicate, tragicomic contours of films like *Alice in the Cities* and *Rings of the Road* are here steamrollered by a thriller plot that is so busily incomprehensible that I couldn't give you a summary of it even had I the space to try. The performances are good (Dennis Hopper, Bruno Ganz) and there are one or two atmospheric sequences—a murder in a subway station, a sinister hospital—but one has come to expect far more from Wenders in recent years than atmosphere and good acting.

Talking of good performances: most of these came this year from the women: a refreshing and salutary change. Isabelle

For the rest of the festival's varied offerings, a list of honourable mentions must suffice. Agnes Varda's *L'Une Chante, L'Autre Pas* chronicles the lives and loves of two French girls who contrast contrasting temperaments lead their lives first in opposite directions—one to marriage and children, the other to a life of footloose Bohemianism—then, as if by polar attraction, back to the starting point. Intelligently written; very sensitively played; a certainty, I should think, for London.

The Danish film *Boys* is about parental repression through the ages; how it operates in the life of a boy whose growth we follow from age six to age 19. It is one of the first ever films to deal honestly and unambiguously with the theme of childhood sexuality; a subject almost as taboo today as it was when that controversial Viennese Sigmund Freud first mooted it half a century ago.

Finally, two delightful documentaries which will, I hope, speed their way to London at the earliest opportunity. *Moï Tsinin*, by Gerard Valet and Henri Roman, is a lucid and colourful account of the birth and evolution of that deathless cartoon hero created by Hergé. *Bumping Iron* is George Butler and Jerome Gary's funny and appalling documentary about body-building. Funny for its depiction of the psychological pumping muscle-men in the gym-up to the Mr. Universe contest. Appalling for the monstrous distortions to which the participants subject their bodies in the name of virility or aesthetics, or whatever the psychological subject with a merciless eye, and a witty one, and some British disapprover should lose no time in stepping it up.

Elizabeth Hall

I Musici by NICHOLAS KENYON

Not every chamber orchestra has the good fortune to preserve its collective style, without being disturbed by changes of personnel, and without becoming stale, over such a long period as 25 years. But *I Musici* has done just that. Their leader, and soloist in Vivaldi's "Seasons" last night was not Michael Cooke, but Pina Carmirelli, whose solid, thick, resonant sound matched well the pre-determined character of their performance.

The sustained, legato playing of the eleven strings created a splendidly homogeneous sound, and indeed rendered somewhat irritating the submerged rattle of Giovanni Paisiello. It was clear, even without the programme, rarely,



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Fischer Fine Art Henry Moore photographed

by WILLIAM PACKER

One of the minor pleasures of a Henry Moore exhibition at Orangerie in Paris, is the all set of photographs by David Finck showing important aspects of Moore's work in its permanent in various parts of the world. The photos are beautiful enough in their own right, but they also point, fundamental to understanding of Moore and work he has been doing for 30 years, that the sculptures into its own in the air.

The Entertainment Guide is on Page 12

David Finck, an American businessman, took it upon himself to make possible every major work by Moore that sits out of the world and the task proving truly global, taking him to America, very thoroughly

around Europe, and beyond, to the Middle East, to Australia and Japan. The visual dossiers he has compiled, amounting to a comprehensive survey of each piece, exploring not only its formal qualities in great detail but also its relationship to the site and its response to its influence, combine in an art-historical document of considerable importance.

The same sculpture turns up in different places, and its character undergoes a subtle modification; for place exerts a powerful if insidious effect upon the sensibility, and a wild Nature intrudes too much, then Nature must be modified; if the architect is indifferent, then he must be criticised; "And as for the photographer, "A nice sky. One has to be careful in not at all amused by reports of the film and has been busy getting her lawyers into harness. But the film is surely too much of a comic squib, too self-evidently—and enjoyably—absurd to cause its real-life models serious offence?"

We also saw an hour of Syberberg's marathon portrait of Hitler. When completed, this film will last six hours, but the director chose to honour the

sculpture and environment, with a foreword by Lord Clark, and commentaries by Henry Moore himself, to accompany the 495 plates. At £30 it might make the ordinary coffee table groan a bit, but it is a fine book and well worth searching out.

David Finck's text is enthusiastic, a shade fulsome at times, but useful and straightforward, and Henry Moore's comments are fascinating, ranging from his technical to the personal, but always focusing, an insistent priority, upon his works. If

Guildford Philharmonic's role in the South-East to be discussed

The Guildford Philharmonic Orchestra has been adopted by the South East Arts Association as the regional orchestra of the South-East. With a view to seeing how the orchestra can best fulfil this role in the region, a number of people are being invited to attend the Guildford Philharmonic Orchestra's Silver Jubilee concert in the Civic Hall on Saturday, June 4.

An informal discussion will take place at about 6.15 p.m. at which the orchestra's director of music, Vernon Randle, members of the orchestra, concert promoters in the region, representatives of the South East Arts music advisory panel, and several of the South East Music Trust's patrons, etc., will be present.

cell Room Aulos Ensemble by MAX LOPP

Leeds-based Aulos Ensemble made its London debut on Sunday with a programme of 20th century music that provided causes for gratitude. The second half, directed and spoken introductions by Philip Wilby (the director of the Ensemble) also in different places, and its character undergoes a subtle modification; for place exerts a powerful if insidious effect

Chabrol film to open new London cinema

Artificial Eye Film Company's new cinema, the Camden Plaza (formerly Plaza) at 211 Camden High Street N.W.1 (opposite Camden Town Underground Station) will open on Thursday, June 9, completely refurbished with 340 seats.

It opens with a new film by Claude Chabrol *Une Partie de Plaisir* (Pleasure Game).

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EUROPEAN NEWS

Brezhnev attack on NATO plan to boost arms spending

BY DAVID SATTER

MOSCOW, May 30.

SOVIET PARTY leader Mr. Leonid Brezhnev said tonight that the recent meeting of NATO Defence Ministers had justified increased military appropriation on the basis of "absolutely false estimates" of the policy mapped by the Soviet Union and other Warsaw Pact countries.

Mr. Brezhnev said NATO leaders called for the planning of the arms race for years to come and the consolidation of the Atlantic bloc's offensive potential on the basis of "deceived estimates" that "deceived the public".

He made his remark in the course of a general review of the world situation at a Kremlin dinner in honour of Bulgarian Communist leader Todor Zhivkov, Soviet president Nikolai Podgorny, who was recently snubbed from the ruling Politburo, was not present at the event for Mr. Zhivkov, an apparent indication that he is no longer fulfilling the duties of his state post.

During his speech, Mr. Brezhnev criticised "certain elements" in West Germany for attempting to aggravate world tension by "de facto correction" of the Four Power agreement on the status of the city.

Mr. Brezhnev added in his first public reference to China since the end of the lull in Soviet anti-Chinese propaganda early this month, that there are forces in China trying to drive Soviet-Chinese relations into an impasse and if possible, aggravate them further.

UPI reports from Brussels, Georgia: President Carter responded mildly to-day to Mr. Brezhnev's statement that the Soviet-U.S. arms limitation talks are not going well. He said U.S. negotiators will be "very persistent" without being in a hurry, about signing an agreement.

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THE EUROPEAN COURT Of chickens and skim milk

BY A. H. HERMANN, LEGAL CORRESPONDENT

A MUCH disliked and now almost defunct EEC regulation under which chicken farmers and pig farmers could not be supplied with vegetable protein feeding stuffs unless they also bought a certain quantity of much more expensive skimmed milk powder may yet produce some lasting good. It may lead to the institution of judicial review of such measures if the European Court will use the opportunity presented to it by ten complaints from farmers who were hurt by this regulation and contest its legality.

The proceedings have reached the stage of oral hearings. Four hearings have been held so far. One hearing was concerned with the cases (Nos. 83 and 94/76 and 4 and 15/77) of four German chicken farmers against the EEC Council and the EEC Commission. The farmers claim damages amounting to DM248,828 (about £80,000) for loss sustained because Regulation 563/76 introduced obligatory purchase of dry milk powder as an additive to vegetable protein feeding stuffs. The other three hearings were concerned with a further six cases referred to Luxembourg by German courts (Nos. 114, 119 and 120/76) and Dutch courts (No. 116/76), asking whether Regulation 563/76 should be considered valid and binding.

The arguments follow the same pattern, so much so, that they seem to have come from the same pen. The defence of the contested milk-powder regulation is also identical in all cases, and the Court will no doubt produce four identical judgments. It probably could stall, but could also seize the opportunity for yet another of its bold moves towards the integration of the Community, as it has done more than once in the past. A bold, even revolutionary step, could be taken by applying to agricultural decisions the same test the Court applies in competition matters, where it requires conformity with the aims of the EEC Treaty. Regulation 563/76 concerning obligatory purchase of skimmed milk powder held by intervention authorities and earmarked for

the simplest explanation is that the victim, for once, was not the consumer, but a vociferous sector of the farming community. The chicken farmers and the pig farmers felt they were being made to pay the bill for the dairy farmers, and they did not like it. They now argue before the European Court that the measure not only is discriminatory, unreasonable, unfit to achieve the aims pursued and formally unfit because the grounds for adoption were not properly stated, but also that the Commission and the Council exceeded their powers and violated the EEC Treaty.

The chicken farmers and pig farmers felt they were being made to foot the dairy farmers' bill, and resent it... they say the measure is discriminatory, unreasonable, unfit to achieve the aims pursued, and that the Commission and the Council exceeded their powers and violated the EEC Treaty.

The aim of the EEC Commission and Council in proposing and adopting this Regulation was not to ensure a greater use of a valuable source of protein in the feeding of farm animals, as asserted in its preamble, but simply to get rid of 400,000 tons of skimmed milk powder. It succeeded with 200,000 tons only, but so the reaction was quite extraordinary in view of the commission's calculation that the measure increased the cost of chicken feed by only 2.31 per cent, and of pig feed by a mere 1.34 per cent. The intensity of the protest can perhaps be explained by the fact that in absolute figures the burden imposed was a kind of retroactive surcharge on contracts already concluded.

The introduction of obligatory procurement, the chicken farmers say, is quite contrary to the basic Treaty concept for agriculture which is regulation of the market by means of price interventions. But more specifically, they submitted, the Regulation cannot be reconciled with the fundamental rule of Article 39/1 of the Treaty which reads in part: "The objectives of the common agricultural policy shall be: (a) To increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of the factors of production, in particular labour..."

Flow can rationalisation be achieved, the plaintiffs ask, if the Commission and Council by intervention prices and subsidies first stimulate the production of milk surpluses, and then force farmers to feed this expensive protein to chickens, instead of the vegetable protein feeds which chickens prefer and of which there is an adequate supply?

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LEGAL NOTICES. No. 0015 of 1977. In the HIGH COURT OF JUSTICE Chancery Division Companies Court. In the Matter of TRULOCK SERVICES (CONTRACTS) LTD. (INCORPORATED IN THE MEXICO) LTD. and in the Matter of The Companies Act, 1948.

International Arbitrage Trader. To be responsible for Trading Desk in London Office. Thorough knowledge of International Equity Markets and experience in dealing with institutional accounts required. Contact: Dick Rogoff, Goldman Sachs International Corp., 40 Basinghall Street, London EC2V 5DE, 01 638 4125.

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CONTRACTS AND TENDERS

GOVERNMENT OF MAURITIUS. Ministry of Agriculture and Natural Resources and the environment. Bulk Sugar Terminal Port Louis. Reinforced Concrete Structures. Contract No. 3. Tenders closing at 1.30 p.m. on Wednesday 3rd August, 1977, are invited for the following works for the Bulk Sugar Terminal at Port Louis, Mauritius in accordance with the drawings, specification and general conditions of Contract No. 3. The major reinforced concrete structures are: 1. Two horizontal storage sheds each 365m long by 46m wide, with 5.2m high side walls with suspended floors approx. 1.5m above ground level and supported on extended concrete piles. Each shed has a central longitudinal reclaim tunnel. 2. A 40m square receiving station, including foundation beams and slabs, four weighbridge pits, two receiving hoppers and a transfer tunnel. 3. Two below ground change direction pits: two transfer pits and a connecting tunnel at the seaward end of the sheds. 4. Foundation slabs and beams for the administration building; workshop and equipment store; electrical substation and weigh-tower. 5. Two water tanks with pumphouses and foundations for prestiles for elevated steel galleries. A drainage system and some minor structural steelwork is also included in the contract. The lowest or any tender may not necessarily be accepted. Drawings, specification and general conditions of contract may be examined at the offices of the Consulting Engineers, Macdonald Wagner & Priddle Pty. Ltd., at 225 Miller Street, North Sydney, N.S.W. Australia, and also C/o Mauritius Sugar Syndicate, Plantation House, Place D'Armes, Port Louis, Mauritius. Sets of drawings, specification and general conditions of contract for companies registered in Mauritius may be obtained from Macdonald Wagner & Priddle Pty. Ltd., Plantation House, Port Louis and for companies registered in all other countries, they may be obtained only from Macdonald Wagner & Priddle Pty. Ltd., 225 Miller Street, North Sydney, N.S.W. Australia—Telex 20836. The non-returnable charge for each set of documents obtained in Mauritius is 1,450 Mauritian rupees and for each set obtained in Australia 200 Australian dollars. Envelopes endorsed "Tender for Contract No. 3, reinforced concrete structures, Bulk Sugar Terminal—Port Louis" and containing a tender accompanied by a tender deposit are to be addressed to the Chairman, Tender Board, Ministry of Finance, Port Louis, Mauritius. Tenders should be lodged in the tender box, at the Chief Cashier's Office, Accountant General's Division, Treasury Building, Ministry of Finance, Port Louis, Mauritius. If personal lodgement is unsuitable, overseas tenderers shall post their tender and cable or telex the Chairman, Tender Board (Telex 249 ext. 1W). Full information of the method and means of despatch of their tender which shall include date of despatch, consignment note number, flight number of carrier and any additional information that will enable the tender board to collect the tender without undue delay. The provision of such information does not relieve the tenderer of his obligation to ensure that the tender is received on or before the advertised tender closing time and date. L. Purmesur, Permanent Secretary, Ministry of Agriculture and Natural Resources and the environment.

LEGAL NOTICES. No. 0082 of 1977. In the HIGH COURT OF JUSTICE Chancery Division Companies Court. In the Matter of BEAUTRE LIMITED and in the Matter of The Companies Act, 1948.

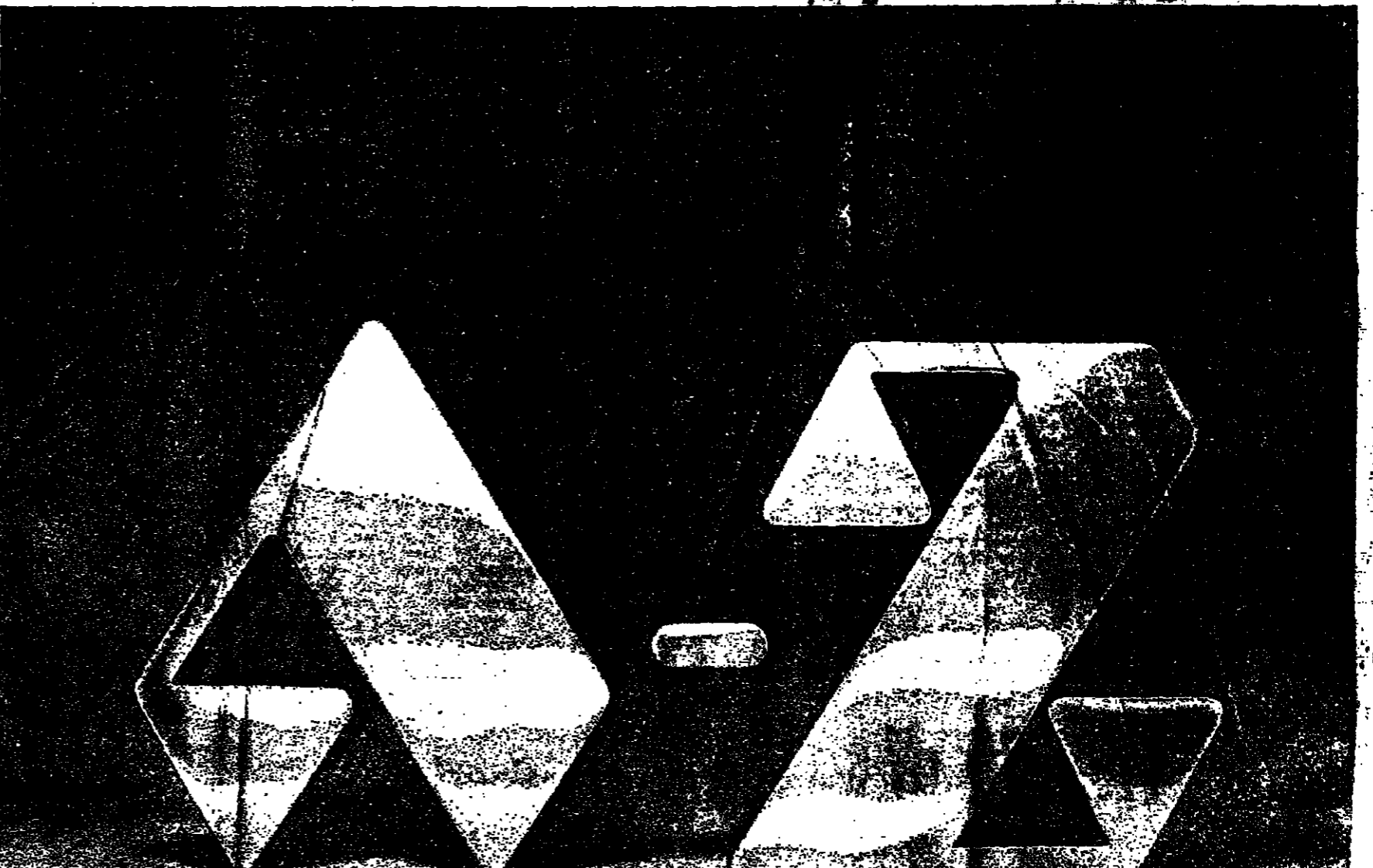
LEGAL NOTICES. No. 0083 of 1977. In the HIGH COURT OF JUSTICE Chancery Division Companies Court. In the Matter of LANGCASTER CARPETS LIMITED and in the Matter of The Companies Act, 1948.

LEGAL NOTICES. No. 0084 of 1977. In the HIGH COURT OF JUSTICE Chancery Division Companies Court. In the Matter of HERBERT OFFENBECKER, NATHAN & LARBY, 21, Copthall Avenue, London, E.C.3.

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E. Germany-Poland pact

THE LEADERS of East Germany and Poland have signed a new 25-year friendship and mutual assistance treaty here that drops the reference to possible German reunification contained in their last treaty signed ten years ago. The new pact pledges the two countries to come to each other's aid in the event of an armed attack on either of them. Starting with the new friendship treaty with the Soviet Union in October, 1975, East Germany has had to renew its bilateral treaties with its other allies to expunge the remnants of its pre-1967 policy of eventual German reunification.



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OVERSEAS NEWS

Artillery battles in Lebanon intensify

By Ihsan Hijazi BEIRUT, May 30. THERE IS renewed concern here about rising tension in southern Lebanon after reported intensification of artillery duels in the past few days between Palestinian guerrillas and Lebanese Right-wing Christian militiamen near the border with Israel.

Israel coalition talks remain stalled

BY L. DANIEL

THE PARTICIPATION or non-participation of the Democratic Movement for Change (DMC) in a coalition government led by the Likud, without which a government of Mr. Menachem Begin would have only the slenderest majority in the Knesset, was still in the balance to-night.

Mr. Moshe Dayan, a former Labour Party Defence Minister to become his Foreign Minister. The subsequent face-saving formula which pacified the liberal faction in the Likud—that no appointment would be made from now on—is regarded by the DMC as insufficient.

Tunisia-Libya oil row

BY TANYA MATTHEWS

TUNIS, May 29

RELATIONS between Tunisia and Libya have gone from bad to worse over the continental shelf in the Gulf of Gabes where the Italian oil rig Scarabeo Quadro was displaced by a U.S. drilling ship J. W. Bates, installed by Libya to continue explorations off-shore in the zone which Tunisia has been claiming as sovereign waters.

Japanese ship detained

BY MIGUEL SUAREZ

MANILA, May 30

PHILIPPINE military authorities to-day ordered the detention of a London-bound Japanese tanker diverted to Manila last week by its all-Filipino crew who are protesting against alleged "inhuman treatment" by shipowners in Osaka, Japan.

Bangladesh referendum win for Gen. Zia

President Ziaur Rahman of Bangladesh last night won near-unanimous approval for his martial law policies in a national referendum. Reuter reports from almost 20 per cent of the polling centres, Gen. Zia, as he is known here, had won 99 per cent of the vote.

Arrests follow coup attempt in Angola as purge spreads

LUSAKA, May 30

MORE THAN 100 Angolans, including the deputy chief of staff of the army, have been detained in Luanda following last Friday's attempted coup, President Agostinho Neto was quoted as saying to-night.

These bonds have been sold outside the United States of America. This announcement appears as a matter of record only.

NEW ISSUE

May 31, 1977



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Loan to Singapore

Japan will help Singapore develop a large petrochemical complex on the offshore island of Merbau, Mr. Takeo Fukuda, the Japanese Prime Minister told the Singapore Prime Minister Mr. Lee Kuan Yew yesterday.

Libya recalls envoy

Libya has recalled its chargé d'affaires to Lisbon in protest against Portugal's decision to raise its diplomatic representation to Israel to ambassadorial level.

India \$250m. loans

The Indian Government yesterday announced three loans totalling Rs.4bn. (about \$250m.) as its first instalment of market borrowings for the current financial year, writes R. K. Sharma.

Goa to the polls

The first test of the mood of the Indian electorate will be provided by the former Portuguese colonies of Goa, Daman and Diu, which will vote to-morrow for local governments.

Zambian shuffle

President Kaunda of Zambia has recalled the High Commissioner to London, Mr. Leonard Shanoye, the High Commissioner to Nigeria, Mr. Senti Loloma, the Ambassador to France, Mr. Jonathan Chirunga, and the Ambassador to the Ivory Coast, Mr. Pius Kasutu in a move to streamline the foreign service.

Bhutto names date for talks with opposition

BY OUR OWN CORRESPONDENT ISLAMABAD, May 30

THE Pakistan Government to-day fixed Friday as the day for talks which it promised to have without mental reservations, to allow the opposition Pakistan National Alliance to raise any point it wished. The opposition's main demands have been that Mr. Bhutto, the Prime Minister, should resign, the present National Assembly be dissolved, and that fresh elections be ordered under a reconstituted Election Commission.

Execution in Namibia

BY QUENTIN PEEL JOHANNESBURG, May 30

A self-confessed former guerrilla trainee was hanged to-day in Windhoek, capital of Namibia (South-West Africa), in spite of appeals by the five Western members of the UN Security Council for a stay of execution.

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AMERICAN NEWS

Follow... in Angol... spreads

Race for New York mayoralty nomination

BY JOHN WYLES NEW YORK, May 30. THE BATTLE for the Democratic Party nomination for Mayor of New York City will be a campaign among the city's...

Hughes relatives win control of Summa

NEW YORK, May 30. RELATIVES OF the late Howard Hughes, the famous billionaire recluse, have won control of the board of the Summa Corporation, the main Hughes company in the vast...

QUEBEC'S FOREIGN INVESTMENT POLICY Rebuilding a dwindling economic base

FINANCIAL orthodoxy rather than social democratic sentiment was most interested to encourage Quebec as it comes into production between 1980 and 1985. Mr. Landry explained that he waits at present installed in will have to borrow about \$800m...

\$250m. MAC issue likely

BY OUR OWN CORRESPONDENT NEW YORK, May 30. THE MUNICIPAL Assistance City Corporation (MAC) is expected to issue a \$250m. bond issue in June to help New York repay...

N-defence of South Korea

WASHINGTON, May 30. THE DEPLOYMENT of U.S. Europe and to defend our own nuclear weapons in South Korea homeland, their very deployment clearly implies that the United States is prepared to use them...

Mrs. Carter in Jamaica

KINGSTON, May 30. MRS. ROSALYN Carter, wife of the U.S. President, arrived in Jamaica today at the start of a 10-day tour of the island...

Famine worsens in Haiti

CREASINGLY desperate conditions are reigning from mid-June onward, 2,260 tons of cereals, 790 tons of beans and 150 tons of vegetable oil...

Trinidad industrial plan

PORT OF SPAIN, May 30. energy-based, heavy gas and other hydrocarbons. Trinidad and Tobago government has embarked on a major industrial plan...



GAS-THE FUEL IN THEIR FUTURE.

We're lucky in Britain, we have vast reserves of natural gas in the North Sea—enough to supply our essential needs for decades to come. Natural gas has already brought great benefits to Britain. It saves us thousands of millions of pounds each year on our balance of payments...

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BRITISH GAS

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WORLD TRADE NEWS

Marked upturn by Italy

By Paul Setts
ROME, May 30
ITALY'S BALANCE of trade made a notable improvement during the first quarter of this year compared to the same period last year.

Although the trade deficit increased from lire 1,468bn. about 200bn. in the first quarter of 1976 to lire 1,351bn. this year, in real terms this effectively represents a substantial reduction taking into account Italy's current 20 per cent annual inflation rate.

During the first quarter, Italian exports increased by 40.5 per cent in value while imports rose by only 33.4 per cent against the same period last year. The country's oil bill of lire 1,522bn. for the first quarter represented the heaviest burden on the trade figures.

Export week for London

Financial Times Reporter
Export 77, a week of activities aimed at encouraging and assisting companies and organisations already exporting or considering exporting for the first time, is to be held in London from November 28-December 2.

It will comprise an exhibition of services to exporters of about 65 stands, a free advisory centre manned by up to eight impartial advisers, each specialising in one or more aspects of exporting and a programme of conferences and seminars varying from major conferences on topical export matters to basic educational seminars on elementary export procedures.

Export 77 is being organised by Lenormen in association with Export Times.

U.K. campaign for government action against Arab boycott

BY ANTHONY McDERMOTT

THE BRITISH GOVERNMENT has been urged in a memorandum sent by the three leading Jewish communal organisations to enact legislation against the effects on British companies by the Arab boycott of Israel. Mr. Callaghan, the Prime Minister, has received a joint letter containing a ten-point programme for legislation from the Board of Deputies of British Jews, the Zionist Federation, and B'nai B'rith.

At a Press conference yesterday, the additional point was made that British-Israeli trade had been badly hit by the boycott. Between 1974 and 1976, trade statistics indicated a surplus in favour of the U.K. averaging £136m. a year.

But for the first time for many years, the trade balance for the first three months of 1977 was in Israel's favour by £1.3m. (compared with a deficit over the same period in 1976 of £18.1m.). It is believed that British companies are not bidding for business in Israel for fear of running into trouble with the Arab boycott.

The priority in the memorandum was to stop the FCO "authenticating" the Negative Certificate of Origin (indicating that goods do not come from Israel) demanded by Iraq. In addition, the letter wanted the British Government to oppose the Arab boycott. The U.S. has passed anti-boycott legislation. Canada has told exporters they would not be eligible for assistance if they comply with the boycott. France has passed a law broadly outlawing religious and ethnic prejudice in commercial transactions.

In a forthcoming question in the House of Lords, the Duke of Devonshire intends to link the question of human rights as affected by the Arab boycott with the problem of Soviet Jewry.

Canada-Israeli projects

BY L. DANIEL

TEL AVIV, May 30.

CANADA MAY supply know-how in the development and production of an Israeli bus adapted to the country's particular requirements.

Such Canadian involvement will be studied at ministerial level by both sides, it was agreed here during the first meeting of the joint Canadian-Israeli Economic Committee which was chaired by the Canadian and Israeli Ministers of Commerce and Industry.

Penetration in France was difficult because the French insisted on importers staying with a single buying group. In Germany, there was slightly more flexibility.

The report makes it clear that marketing is a problem. Better sales is required.

The domestic industry's performance was "remarkably good" and deliveries at 2860m. were 14 per cent up on last year.

British furniture sales rise 44%

BY CHRISTOPHER DUNN

BRITAIN SOLD a lot more furniture abroad last year, but even so manufacturers still need to be highly vigilant about production standards, according to Sir Roger Falk, chairman of the Furniture Development Council, in the annual report, published yesterday.

Furniture exports in 1976 totalled £142m., a rise of 44 per cent on the previous year. Volume sales rose by around 25 per cent, and the remainder of the sales gain stemmed from the falling pound.

Europe as a whole was a very good market. The FDC, elaborating on the report, stated that U.K. reproduction furniture was particularly popular in Germany and Scandinavia, and both countries liked traditional U.K. lines. In Germany, in particular, U.K. furniture manufacturers were now trying to compete on more modern ranges.

French win major Saudi contract

By Rod Newman

JEDDAH, May 30.
THE FRENCH company SAJ today was awarded a \$215m. contract for the second stage of a public housing project in Jeddah, the official Saudi Press Agency announced. The contract, to be completed in 21 months, involves construction of 12 18-storey apartment blocks with shopping centre and other facilities. The contract to the first phase of the project was awarded to another French company, Bouygues, several weeks ago.

Greenham Tool Company has been awarded a contract valued at well over £700,000 to supply dustbins to the Waste Management—Saudi Pritchard joint venture in Saudi Arabia which is engaged in a major street cleaning contract for the City of Riyadh.

New container services

Two new joint container services to the Mediterranean and the Middle East have been formed by Ellerman City Liners, P & O Strath Services and Prince Line, our Shipping Correspondent reports.

Ellerman and P & O are behind the Ellerman Strath Container Service which will sail weekly from Ellesmere Port, calling at Malta, Piraeus, Beirut, Tartous and Iskenderun (for Iraq and Iran). On homeward runs, additional calls will be made at Salerno and Carthage. Simultaneously, Ellerman and Prince have joined forces to form the Ellerman Prince Container Service leading at Hull, London and Rotterdam initially on a fortnightly schedule. Calls will be: London to Beirut, Tartous and Iskenderun; Hull and Rotterdam to Malta, Piraeus, Limassol, Beirut, Tartous, and Iskenderun. Salerno and Carthage will, once again, be additional stops on the home run.

Romania may build up to fifty BAC 1-11 airliners

BY MICHAEL DONNE, AEROSPACE CORRESPONDENT

BRITISH Aerospace, the nationalised aerospace organisation, is hoping that Romania may eventually build as many as 50 of the 1-11 short-haul jet airliners produced by the British Aircraft Corporation, a member of British Aerospace, as a result of an agreement signed in Bucharest over the week-end. The agreement, signed by Mr. Allen Greenwood, deputy chairman of British Aerospace, and the Romanian Foreign Trade Ministry, is in effect an agreement to proceed to discussion of detailed contracts.

It clears the way for British Aerospace technicians to negotiate with the Romanian aircraft industry on developing a capacity to manufacture the 1-11 in Romania. Initially, it is expected that there will be joint manufacture of parts of the aircraft in the U.K. and Romania, progressively extending so that the Romanian industry, by about 1985, would be building complete aeroplanes. Rolls-Royce is a party to the agreement indirectly, in that its Spey engines are used in the 1-11.

The precise number of aircraft involved is not specified, but British Aerospace is confident that it could rise to as many as 50 or more, worth several hundred million pounds. So far the British Aircraft Corporation has built 222 of the 1-11s in various versions. The version of the aircraft now

Air freight use survey

FINANCIAL TIMES REPORTER

A COMPREHENSIVE survey of the use of air freight by U.K. shippers has been published by the Civil Aviation Authority. The survey, entitled Air Freight Demand, examines the reasons why shippers choose air transport and the relationship between urgency and cost.

Based on questionnaires returned by more than 1,000 U.K. shipping companies, the survey finds that 1-1.5 per cent of their total exports went by air in 1976. Air freight attracted the most air freight by tonnage, but the use of air freight in preference to other forms of transport was higher in other markets, especially in North America where it attracted 2.6 per cent of their total exports.

The largest category of goods to go by air (60 per cent.) was electrical and non-electrical machinery and transport equipment. Consignments weighing more than 500 kg (5 per cent of the total) accounted for almost 60 per cent of tonnage.

Speed and reliability were the most important reasons for using air freight, while cost was the main deterrent. Some 60 per cent of consignments were thought to have required a premium service.

Air Freight Demand, a survey of U.K. Shippers (CAP 401), published by the Civil Aviation Authority, price £3.00.

Japan car and TV exports fall

TOKYO, May 30.

JAPAN'S April vehicle exports fell to 327,870 units, bringing the total in the first four months to 7,000 units, up 21 per cent. In April last year, the Automobile Manufacturers' Association said cumulative exports to the U.S. were down 30 per cent. In July when Japan's self-imposed export restraints on shipments to the U.S. starts with an annual ceiling of 1.75m. sets.

Exports to Britain rose 47 per cent, to 9,320 sets in April from April last year, those to Australia were down 30 per cent, to 3,385. To West Germany up 8 per cent, to 25,290 and to Kuwait up 511 per cent, to 10,424.

Suntory doubles capacity

KENNETH GOODING

SUNTORY THE major Japanese whisky producer, has completed an expansion programme at its Hakushu distillery at the cost of Yen 5bn. (around £105m.).

Production capacity has been doubled to 3.9m. proof gallons a year which Suntory believes makes it the largest malt whisky distillery in the world. The group has one other malt distillery at Yamazaki, near Kyoto, and says that the capacity at the two plants totals 14.5m. proof gallons.

Suntory claims 60 per cent of the Japanese whisky market and has recently begun to push whisky exports as well. It says the project at Hakushu Town, Kitakunagui, in the Yamaguchi prefecture, "was completed in view of the rapidly expanding domestic and export markets for Suntory whiskies."

The group is rapidly emerging as one of the world's leading liquor producers—sales, including those of its brewing business, totalled £940m. last year.

Soviet trade pact now signed

TOKYO, May 30.

JAPAN AND the Soviet Union today signed a new five-year trade agreement, stalled since last September after a Soviet pilot flew a top secret MiG-23 jet fighter to Japan.

It was signed by Soviet Foreign Trade Minister Nikolai Patolichev and Japanese Foreign Minister Ichiro Hatoyama, who both expressed the hope that relations between their nations would be further expanded. The old five-year agreement expired in 1975 or negotiations to renew the pact were concluded last November.

The signing was seen here as a partial thaw in relations between the two countries strained after the Mig incident. The aircraft has since been returned to the Soviet Union, but the pilot sought political asylum in America.

Russo-Japanese relations were also strained over a fishery talks, but these in agreement last year. Bilateral trade reached \$4.5 billion last year—22 per cent more than in 1975.

Reuter

CONTRACTS AND TENDERS

SALE BY TENDER

Assets of Provincial Refining Company Limited

Sealed tenders marked "DO NOT OPEN—TENDER—Provincial Refining Company Limited" will be received by the undersigned until 3:00 p.m. (Local Toronto time) on the 15th day of September, 1977, for the following assets of the above company.

The Come-by-Chance Refinery and offsite facilities located at Come-by-Chance, Placentia Bay, Newfoundland, Canada. The design capacity of the refinery is 105,000 BPSD based on design cases for Kuwait and Light Iranian Crude.

Designed Range of Marketable Products, Calendar-Day Output (Balanced Process Yield from Design Feedstocks)	BPCD	
— propane	300	1,100
— gasoline	29,500	28,750
— jet/ kerosene fuel	5,700	23,000
— no. 2 fuel oil	41,400	16,000
— no. 4 fuel oil	—	15,600
— no. 6 bunker oil	16,100	4,100
— residual	—	5,400
— sulphur (st/d)	164	152

- Process Units and Design Capacities:
- 105,000 BPSD Crude/Vacuum distillation unit
 - 18,000 BPSD Visbreaking* unit
 - 26,700 BPSD Platforming* unit (Catalytic Reformer)
 - 18,800 BPSD Distillate Hydrobon* unit (Hydrotreater)
 - 35,000 BPSD Distillate Isomax* unit (Hydrocracker)
 - 19,800 BPSD Naphtha Hydrobon* unit (Hydrotreater)
 - 66 million scfd Hydrogen plant
 - 6,300 BPSD Light Straight Run (LSR) Merox* unit (extraction and sweetening)
 - 14,200 BPSD Kerosene Merox* unit (sweetening)
 - Light ends recovery and treating unit
 - 22 million scfd amine regeneration unit
 - 200 LT/D Sulphur recovery unit
 - * Processes licensed from UOP Inc.
- Related Facilities, including:
- complete utilities plant
 - tankage
 - crude and product pipelines

- pollution control system with:
 - API separator
 - effluent biological treatment
 - 250 foot H₂S incinerator stack
 - 200 foot waste-gas flare stack
 - warehouse and spare parts
 - suitably furnished office building
 - central control room
 - laboratory
 - accommodation facilities consisting of:
 - motel units
 - bunkhouse campsite
 - machine shop
 - fire and ambulance building
- The use of port facilities comprising a tanker jetty and material handling jetty is subject to negotiation with their Government owners. There is rail access to the refinery from the Canadian National system.
- Tenders must be accompanied by a deposit in the form of a certified cheque, letter of credit, bank draft or bond of one per cent (1%) of the amount tendered which will be refundable if the tender is not accepted. Details of the procedure for

tender and the terms and conditions of sale may be obtained from the undersigned.

The highest or any tender shall not necessarily be accepted and the right to reject any and all tenders is reserved.

The refinery was started up in December, 1973, shut down in February, 1976 and is now mothballed in accordance with advice from experienced operations personnel of The British Petroleum Co. Ltd.

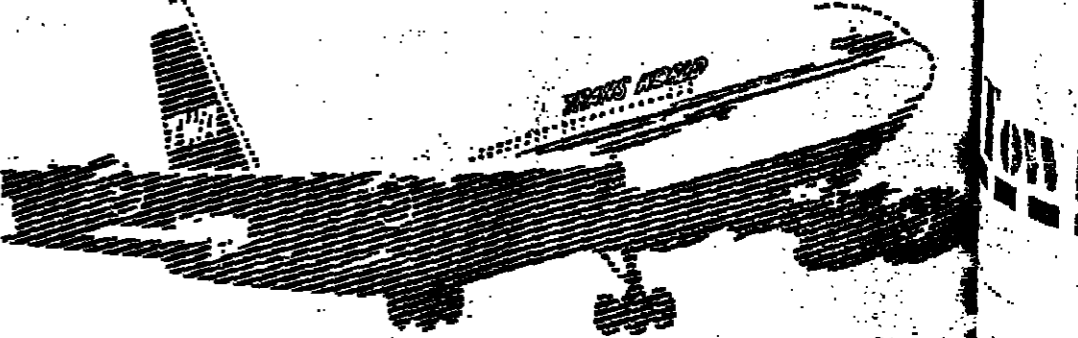
Appointments for inspection of the assets may be arranged by contacting Mr. Paul A. Hayes at (416) 863-3603 or Mr. Gary F. Colter at (416) 863-3453 or telex Veritatem no. 06-217692.

PEAT MARWICK LIMITED

Receiver and Manager—Provincial Refining Company Limited
P.O. Box 31, Commerce Court West
Toronto, Ontario M5L 1B2
Canada

New from TWA: A daily non-stop to San Francisco

A daily service, via the Polar route, leaves London 11.30. Arrives in San Francisco 14.40. Call your travel agent or TWA.



Nº1 across the Atlantic
TWA
TWA carries more scheduled passengers across the Atlantic than any other airline.

HOME NEWS

Ulster police have more successes against terrorism

BY OUR BELFAST CORRESPONDENT

BETTER RESULTS by the Royal Ulster Constabulary in fighting terrorism will be detailed by Mr. Kenneth Newman, the force's Chief Constable, at a security review today with Mr. Roy Mason, Northern Ireland Secretary.

Hint of extra EEC aid for province

BY OUR OWN CORRESPONDENT

MINISTERS and officials at the Northern Ireland Office had lengthy talks about the Ulster economy yesterday with Sig. Antonio Giolitti, the EEC Commissioner for regional policy.

School dinner overheads over twice cost of food

BY MICHAEL DIXON, EDUCATION CORRESPONDENT

OVERHEAD EXPENSES of providing school dinners are now more than twice as great as the cost of the food, according to Government statistics published today.

Computers policy under fire

HONEYWELL Information Systems yesterday attacked the government's computer purchase policy in a statement yesterday.

Levy on excess profits urged by Co-op union

BY ELLIOT GOODMAN IN BLACKPOOL

THE CO-OPERATIVE Union Mr. Roy Hattersley, Secretary for Price Restraint during periods of inflation, did not see long-term controls as necessary in the present.

Left-wing Labour MP urges selective price freeze

CALLS FOR "bold Socialist measures," including a reflation of the economy and a selective price freeze, were made yesterday by leading members of the Labour Party who offered fraternal greetings to delegates at the Co-operative Movement's annual congress, writes Elinor Goodman.



Mr. ROY HATTERSLEY Firm on price controls

Mr. Hattersley is firmly wedded to his own ideas for a permanent system of investigation into proposed price increases, but even though they were keeping the Co-op's idea "just might" become more attractive to the Government in August if the unions demand further controls on profits to compensate for the end of the present ceilings on profits and dividends.

Pay deal paper purchase 'could destroy jobs and fuel inflation'

BY PHILIP RAWSTORNE

THE POLITICAL paper purchase for a new pay deal with the TUC could end in disastrous inflation and job destruction, Sir Geoffrey Howe, Tory economics spokesman, said yesterday.



MR. ERIC HEFFER Pressing for reflation

Go-ahead recommended for Shell/Esso plan

BY KEVIN DONE, CHEMICALS CORRESPONDENT

THE £400m. petrochemical complex proposed by Shell/Esso and Esso Chemical for construction at Fife Regional Council for a lengthy public inquiry, beginning on June 27, at which as many as 400 objectors will state their case against siting the complex in Fife.

Trust Houses Forte create employment

As probably the largest hotel, catering and leisure group in the world, our 'shopping list' is considerable.

- 1 We spent £223,000,000 on goods and services last year.
2 £34,000,000 was spent in the public sector, including gas and electricity.
3 In the private sector we spent £189,000,000.
4 We purchased 37 million pints of milk, 19 million eggs, 7 million loaves, 32,000 tons of meat and vegetables. We also purchased 3 million glasses, 3 million pieces of crockery, 500,000 pieces of cutlery and 57 miles of carpet.

All this represents employment. In addition to the 52,000 men and women employed within Trust Houses Forte, we also indirectly provide a livelihood for many thousands of people in virtually every type of industry.

This is how we are making our contribution to Britain's economy



Hotels

Ring 01-567 3444 or 061-969 6111 for reservations at any of our 800 hotels worldwide

The Pension Deadline

Directors. Where will you stand?

Before December 13th your company must decide the relative merits of contracting in or out of the new State Earnings Related Pension Scheme.

Ask Towry Law Independent Financial Advice

Would like to know more about tax efficient pension arrangements or my company/myself.

Name

Address

Towry Law & Co. Ltd., 2001 House, 54/62 New Broad St., London EC2M 1TR

Tel: 01-588 5595

and also in Windsor (Hemel Hempstead), Leeds, Edinburgh and Glasgow.

Incorporated Insurance Brokers & Licensed Dealers in Securities

HOME NEWS

BP plans further North Sea expansion

By Ray Daise, Energy Correspondent
BRITISH PETROLEUM is about to extend its influence in the North Sea oil exploration by gaining control of a block immediately north of its Magnus Field.

Sunderland Shipbuilders wins £50m. liner order

BY ROY ROGERS, SHIPPING CORRESPONDENT

SUNDERLAND Shipbuilders has won orders worth more than £50m. which will keep its Wear yards busy until early 1979 and give considerable work to other companies within the group.

Far Eastern competitors. The new orders involve six 13,500 tonnes deadweight cargo liners, three of which will be built at Hull and three at the company's nearby Deptford yard which would otherwise have run out of work by December.

potential contract is fiercely contested world-wide," said. "We are most grateful to Bank Line for again demonstrating their confidence in the most positive way, of the ability of Sunderland Shipbuilders to build the type and quality of ship to meet their requirements."

Britain sells coal gas plant to U.S.

By David Fishlock, Science Editor

ADVANCED British gas-making technology is to be used by U.S. industry in the development of a process for converting coal into synthetic natural gas.

Cabinet will not find more cash for London commuters

BY IAN HARGREAVES, TRANSPORT CORRESPONDENT

DIFFERENCES OF Ministerial view on two important issues have emerged during the passage of the White Paper on transport through Cabinet committee.

Confidence. Mr. Jim Gillian, chairman of the shipbuilding group, commenting on the orders, said that at a time when "any

services should be taken by county councils, and implicitly accepts that they will have to give part of the money which at present goes direct to British Rail as part of the public-service obligation payment.

World Value of the Pound

The table below gives the latest available rates of exchange for the pound against various currencies on May 30, 1977. Rates are nominal. Market rates are the average of buying and selling rates except where they are shown to be otherwise. In some cases market rates have been calculated from those of foreign currencies to which they are tied.

Scheduled Territory; (o) official rate; (F) free rate; (T) tourist rate; (N.C.) non-commercial rate; (S.A.) special rate; (S.G.) selling rate; (B.G.) buying rate; (D.M.) nominal; (E/C) exchange certificate rate; (P) based on U.S. dollar; (S) member of the sterling area other than Scheduled Territory; (K)

Table with columns: Place and Local Unit, Value of \$ Sterling, Place and Local Unit, Value of \$ Sterling, Place and Local Unit, Value of \$ Sterling. Lists various countries and their exchange rates.

Part of the French community in Africa formerly of French West Africa or French Equatorial Africa, uses the franc. Tourists visiting the islands receive a premium of 65 cents per franc.

North Korean won at 8,700 roubles. With the pound standing at 1.55 roubles the following relationships may be calculated for the pound: 1 rouble = 1.55 pence.

Gallaher 2p on cigarettes

GALLAHER is to increase its 2p on a ounce to 87p and pipe cigarette prices from June 1. There will not be an increase on cigars. Most brands will go up 2p for 20 making Benson and Hedges Special Filter 56p.

NEWS ANALYSIS—ACCOUNTING Finding a better alternative to Morpeth proposals

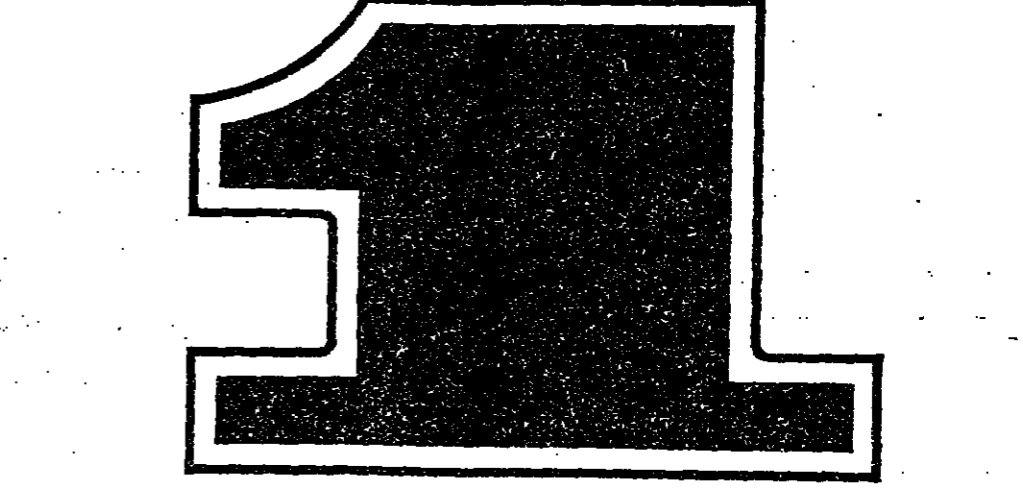
BY MICHAEL LAFFERTY, CITY STAFF

AN ALTERNATIVE inflation accounting exposure draft is published today by the London Society of Chartered Accountants, the largest and most influential English Institute of Chartered Accountants' district societies.

The problem

Essentially, this reflected the problem which accountants have long found difficult to resolve—what is the capital of a business? Is it the shareholders' funds, or the operating capacity of the business itself, as the Sandilands Report suggested.

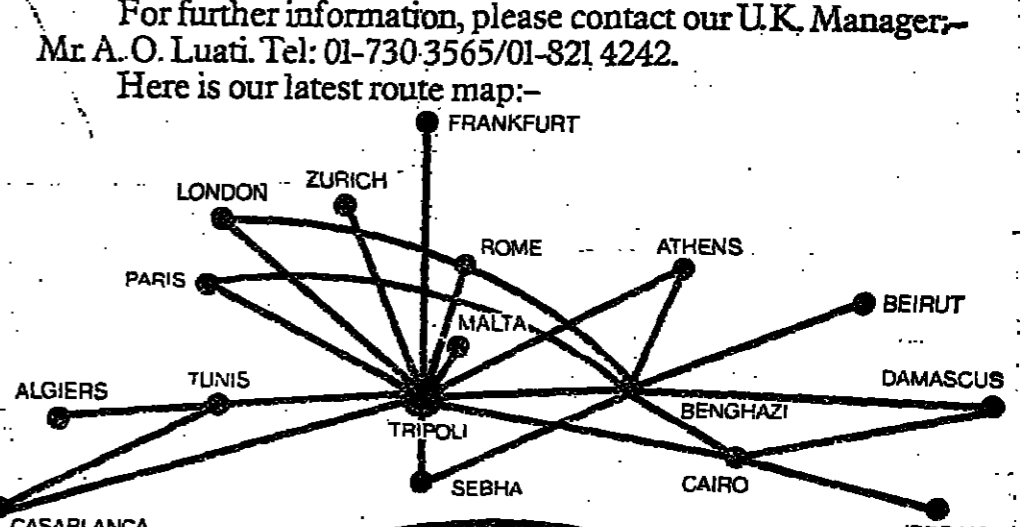
Libya 1



We've expanded again!

Libya 1 (the unique Libyan Arab Airlines Service to and from Libya) offers an important addition to its London-Libya service. There are now two extra flights each week, London-Rome-Benghazi with the option of getting on or off at Rome.

This is all part of a continuous programme of development which has trebled the size of the airline in three years. The fastest, easiest, most relaxing way to fly to or from Libya is by Libyan Arab Airlines.



Libyan Arab Airlines logo and text in Arabic and English: 'انخطوط اجوية العربية الليبية LIBYAN ARAB AIRLINES'. Includes a list of rules for making the net monetary items calculation as follows.

Thomas Cook Bankers and Thomas Cook Travellers Cheques. Text: 'Thomas Cook Bankers' and 'Thomas Cook Travellers Cheques are accepted name for money. Worldwide.'

A FINANCIAL TIMES SURVEY

FRANCE

JUNE 27 1977

The Financial Times is preparing to publish an extensive survey on France in its edition of June 27 1977. It will examine in detail the country's political situation, its foreign policy, economic position and its policies for industry and energy.

INTRODUCTION Following left-wing gains at municipal elections last March, there is a more than even chance that a Socialist-Communist government will come to power at next Spring's general election.

THE ECONOMY Prime Minister Raymond Barre's economic stabilisation plan has gone some way towards bringing inflation under control and reducing the foreign trade deficit; but unemployment remains dangerously high.

THE LEFT The Union of the Left is now the most powerful force in the country and only a herculean effort by the government coalition to patch up internal divisions can reverse the trend.

INDUSTRIAL POLICY The government has favoured rationalisation of major industrial sectors but remains hostile to any large-scale nationalisation as proposed by the Union of the Left.

FOREIGN POLICY President Giscard d'Estaing has adopted a less nationalistic and much less anti-American foreign policy than his predecessors but he has lately put more emphasis on France's independent role.

ENERGY POLICY France's dependence on imported energy has obliged the government to go ahead with an ambitious nuclear programme despite environmental objections.

THE STEEL INDUSTRY The government has adopted a plan to restructure the heavily-indebted steel industry; this has led to a sweeping reduction of jobs in the steel-producing area of Lorraine and has run into fierce opposition from trade unions.

THE AIRCRAFT INDUSTRY Lack of orders for Concorde and the European airbus has created serious problems for the aircraft industry.

THE MOTOR INDUSTRY The motor-car industry remains the most buoyant sector of the economy but growing Japanese imports are a constant worry and truck sales have lagged behind those of passenger cars.

THE COMPUTER INDUSTRY A decision to merge the French CII Computer Company with Honeywell Bull of the U.S. has ended years of uncertainty about the future of the computer industry; but doubts remain about the viability of European national efforts.

BANKING The banking and credit sector is already heavily nationalised and the programme of the Left calls for the completion of state

takeover. Meanwhile, development of Paris as a financial centre continues, and the promised restructuring of important parts of French industry is likely to make heavy demands on the financial services.

ELECTRONICS The government has encouraged the formation of industrial groups capable of seeing through the modernisation of France's telecommunications.

ENGINEERING The heavy engineering industry has been suffering from slack orders for capital goods but its export record remains good. The government has introduced a plan to strengthen the machine-tool industry.

CHEMICALS The chemical industry did much better in 1976 than in the previous year and sales have been rising substantially; but it has suffered from price controls introduced last autumn.

CONSTRUCTION After two poor years, the building industry continues to be depressed. Many building companies expect to reduce personnel this year.

SHIPBUILDING The industry has suffered from the general dearth of orders. The Government has introduced measures to aid French shipbuilders but more radical restructuring is generally expected.

AGRICULTURE Last summer's drought caused a considerable loss in production, while early spring frosts may have taken a heavy toll of fruit. Expansion of agricultural exports is playing a vital role in the plans to turn round the French balance of payments.

WINE The intractable problem of surpluses of poor-quality ordinary wine remains to be tackled, and is aggravated by the import of cheap Italian wine.

THE FRENCH CINEMA Few French quality films are currently being produced; but the general output of the industry remains large and co-productions with other countries are on the rise.

THE POMPIDOU ARTS CENTRE. This national centre for modern art and culture opened this year and has attracted abuse for its ultra-modern and original architecture imposed on an old quarter of Paris. But it has become an immensely popular tourist attraction.

The proposed publication date is June 27 1977. Copy date is June 17. For further details of the synopsis and advertisement rates contact:-

Patricia Surridge, 01-248 8009 extension 426 Financial Times, Bracken House, 10 Cannon Street, London EC4A 4BY. Telex 885053. Anne-Marie Tozzi, Tel. 236 85 01 Financial Times, 36 rue du Sentier, 75002 Paris, France. Telex 220044.

FINANCIAL TIMES EUROPE'S BUSINESS NEWSPAPER

The content and publication details of this newspaper are subject to change without notice.

ENTERTAINMENT GUIDE

CC—These theatres accept certain credit cards by telephone or at the box office

Entertainment Guide listing theatres, operas, and performances across various venues like Coliseum, National Theatre, and others.

LABOUR NEWS

Helicopter men cautious on bid to end strike

BY NICK GARNETT, LABOUR STAFF

A PEACE initiative was being organised yesterday, in an attempt to settle the bitter six-week-old Bristol Helicopters dispute. The company's Board decided on the terms of reference it would accept for a court of inquiry into the causes of the dispute, and was expected to notify them to Mr. Albert Booth, Secretary of State for Employment.

A further problem appeared to be Bristow's insistence that the court's panel must be made up of three High Court Judges nominated by the Lord Chancellor. The independent Advisory Conciliation and Arbitration Service had hoped to convene a court of inquiry into the causes of the dispute and has been busy sifting through Lists of likely chairmen.

National Theatre peace bid fails

By Pauline Clark, Labour Staff

ATTEMPTS to end a strike by nearly a quarter of backstage workers at the National Theatre failed yesterday despite appeals from the director of the company and from union officials. The strike began last Thursday over the dismissal of a plumber and cancellations of performances are said to have mounted to about £18,000.

In between their own separate meetings on developments in the dispute, members of Equity, the actors' union, and non-striking backstage members of the National Association of Theatre and Kine Employees marched to a picket line to appeal for an end to the deadlock. Their attempt failed and they continued their meetings.

Tough fight on pay expected in health and town hall unions

BY ALAN PIKE AND DAVID CHURCHILL

REGIONAL industrial action to back up demands for a return to bargaining on free collective motions on pay, and, in one, Phase Two ends will be urged in a motion to the Confederation of Health Services. An amendment to the agenda also demands for a 50 per cent increase for all grades of staff.

As in the preliminary agenda, virtually all motions submitted by branches are against a new pay policy. An amendment to the agenda also demands for a 50 per cent increase for all grades of staff. Several others demand the consolidation of £6 and £2.50 per week rises under the first two phases into basic rates.

Peace plan ends power strike

BY RAY PERMAN, SCOTTISH CORRESPONDENT

A FULL RETURN to work in Scottish power stations is expected this morning following the agreement of a peace formula between the South of Scotland Electricity Board and representatives of the 1200 maintenance men on unofficial strike.

Under the terms of the formula, the Board agreed to stop using its central maintenance squad while there were further discussions on its role. The dispute began over allegations that the squad was being used to do the work normally done by the regular maintenance team at each station.

Dockers reject blacking call from Port Talbot

BY OUR LABOUR STAFF

STRIKING ELECTRICIANS at the Port Talbot steelworks received another rebuff yesterday when Swansea dockers rejected a request to black imported steel coil.

The dockers told strike leaders that if supplies in the tinplate works were strangled tinplate exports which pass through the docks would cease and their own jobs would be threatened. Some of the 360 strikers picketed the docks as part of a campaign to step up their nine-week dispute over a pay claim.

Union urged to organise women homeworkers

BY CHRISTIAN TYLER, LABOUR CORRESPONDENT

THE POOR WAGES of women figure for only £3.50 a thousand, doing piecework at home for husbands, highlighted at the annual conference of the General and Municipal Workers' Union in Southampton yesterday.

Mrs. Barber called on the union to organise these homeworkers and insist they be paid the statutory minimum wage appropriate to their industry. The TUC Mr. F. Payne (Reading) spoke of a woman, a former leather worker, who had worked 72 hours stitching six dozen pleiskin wallets, to collect £4.08.

COMPANY NOTICES

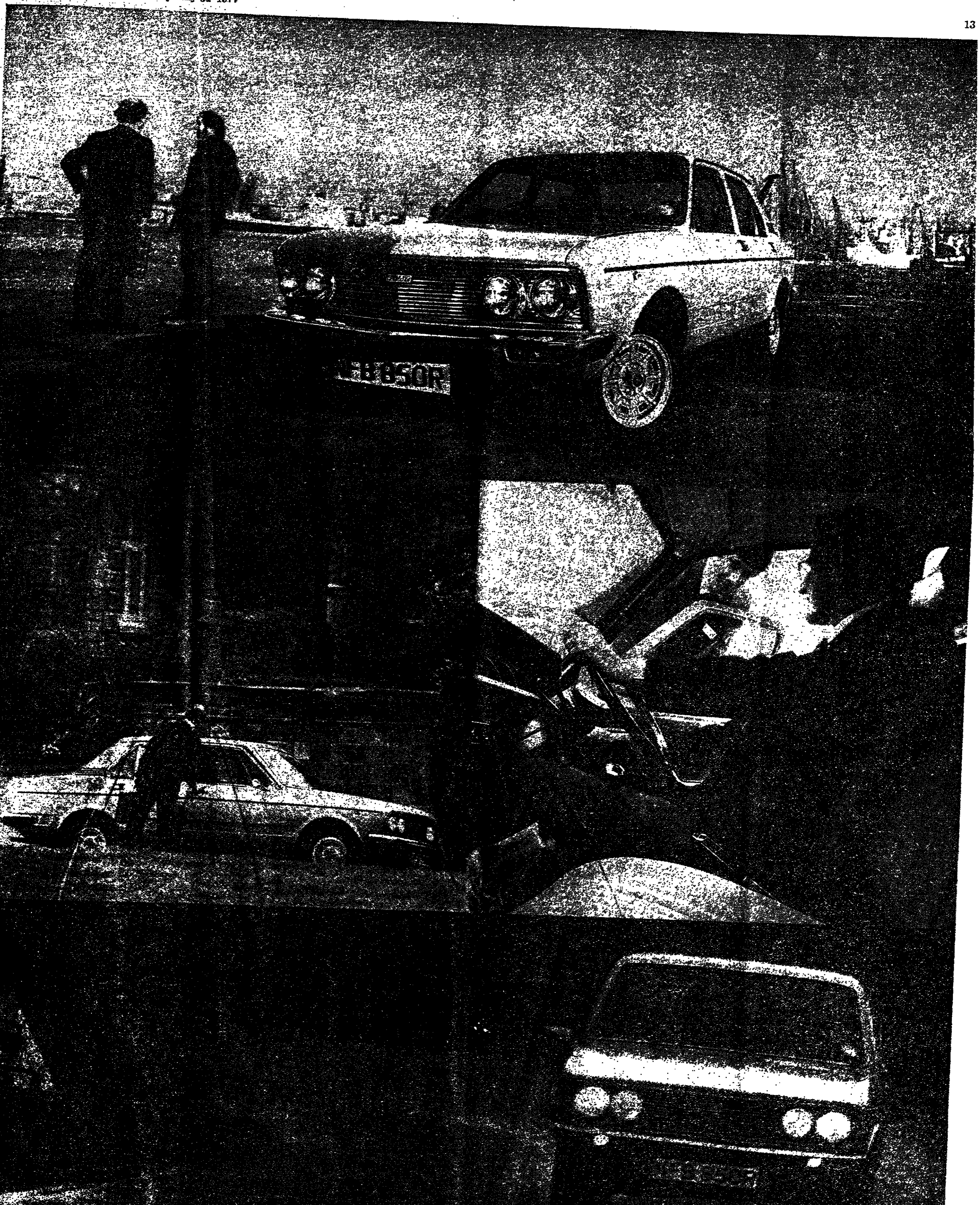
Company Notices section containing various financial and legal notices, including Banque Exterieur, Anglo American Corporation, and others.

Handwritten signature or mark at the bottom of the page.

مكتبة جاز

Nation
Theatre
peace
fails

NOTICES



To appreciate why Bruce Pearce owns a Fiat 132, it is necessary to drive one.

As Financial Controller of a firm of international shipping agents in Bristol, Bruce Pearce travels 2,000 miles a month visiting ports from Aberdeen to Southampton. Although he could have chosen any one of several great European cars, he plumped for a Fiat 132 ES.

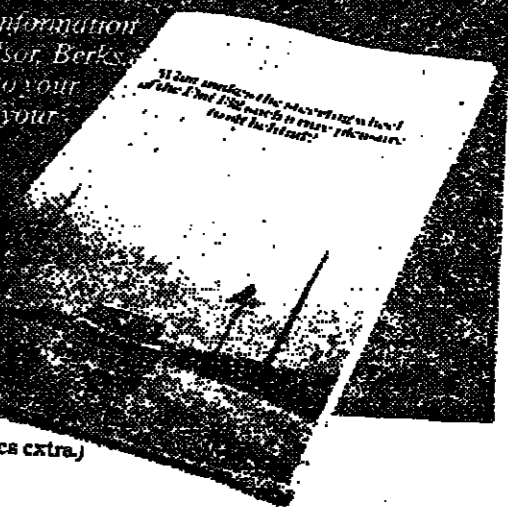
"In my job it's essential my car is enjoyable to drive and handles well. In my 132 I can travel

200 miles very quickly and climb out at the other end as relaxed as when I got in. That's what I call driveability."

Until August 31st, the Fiat 132 is particularly attractive. You can personalise the car to suit your own requirements by choosing £150 of free accessories and also take advantage of the special low-interest personal loan scheme. Full details on the Fiat 132 and these offers are

available in this booklet by writing to: Fiat Information Service, (Dept. FF4), P.O. Box No. 39, Windsor, Berks. SL4 5NE. To arrange for a 132 to be brought to your office or home for a test drive please contact your local Fiat agent.

FIAT 132 ES



The 1600GLS costs £5200. The 1800ES from £3575, shown above, is available with manual or automatic transmission. (Car tax, inertia-locked seat belts and VAT included. Number plates and delivery charges extra.) (Loans are subject to applicant's credit-worthiness.) Offer closes August 31st 1977 and is subject to availability. Prices correct at time of going to press.

Technical Page

EDITED BY ARTHUR BENNETT AND TED SCHOETERS

POWER 1 1/2m. watchdog

SEVEN DAYS of interpreting will be in full operation by 1978.

One important advantage is that the system is more reliable than the previous system. Load trends will be more easily and cheaply determined and the data will be sent for planning to the board's main data processing centre so that it should be possible for example, to defer the purchase of new equipment and obtain better value for money from that already installed.

At the four centres dual 700E machines are installed, each with 84,000 words of core and five megabytes of disc storage, and there are four VDU units.

The 430 sub-stations are allocated to one of 30 territories and each operator deals with a group. Communications to the centre can be by any one of the microwave, radio or telephone bearers already installed using time division multiplex transmission.

MATERIALS Protects steelwork

AN ALTERNATIVE to conventional anti-corrosive treatment of steelwork has been developed by Liquid Plastics of Preston, which says its Isoclad anti-corrosive membrane and application method provides all the benefits of traditional treatments, while at the same time giving the user a number of additional advantages.

Most systems currently in use—ranging from low and high build chlorinated rubbers, alkyd and oil-based finishes to more complex systems utilising epoxy, acrylic or polyisocyanurate combinations—rely on grit-blasting to clean the steel and produce a rust-free surface for treatment. With the more complicated binder structures it is also necessary to ensure that materials are mixed in exact proportions, or are applied when temperatures allow cross-linking of the films. Labour costs are therefore, high, the company asserts.

In the case of Isoclad, however, wire brushing of the surface is sufficient preparation and the membrane is supplied as a single-component, soft, mobile paste, easily applied by either brush or spray to give a 16 alkaline insulation coating. "It's a protective sheath in two coats. Additionally, since Isoclad is water-based, the membrane presents no toxic or fire hazard during application.

The cured Isoclad membrane is elastomeric, will not fracture under normal movement, and can be reinforced at stress points with Flexitape, a flexible bridging system also developed by Liquid Plastics.

Isoclad has a Class 1 certification (BS 476 Part 1) and also has outstanding durability, high resistance to a wide range of reagents and excellent impact resistance. The performance of the membrane under salt conditions is demonstrated by a 5,000 hour (as opposed to the normally accepted 500 hour) test in a salt spray cabinet with no deterioration or corrosion on the steel.

Intended to inhibit further active corrosion, even in cases where rust is still present, the combination of Isoclad metal primer and the subsequent water-based membrane system is sufficient to passivate corrosion so long as the skin remains intact. It will not sapoxify under alkaline conditions. This also means that the Isoclad system can be used to protect steelwork prior to the application of alkali resistant coatings, yielding potentially large savings in steelwork replacement.

More from the company on 061 872 8334.

Polymer roofing plant

LAST WEEK a new film plant was commissioned at Herford to enable Permanent (a Tarmac Group company) to expand production of its bitumen polymer sheeting. This material forms the basis of the company's waterproofing systems, which are used for flat roofs, and for roof gardens.

The latest mixing, milling and calendaring equipment has been installed, and the plant has a potential output of 12,000 tonnes of polymer sheeting a year.

The factory is a concept of the consulting engineers Knight Weissenstein, and the 10,000 square foot building was designed and built by Tarmac Construction (London) on a 6 acre site of reclaimed land.

Some 5m square metres of Permabit 60 bitumen polymer roofing has already been used on buildings in the UK, and overseas, and the new factory will help meet the increasing demand for this type of material.

PROCESSING Pills by the thousand

A NEW tablet making plant costing £5m, capable of producing 2,000m. tablets/year (22,000/minute) is now in operation at the Wellcome Production Centre, Dartford, Kent. The new factory was officially opened last Friday.

The four-storey building has been designed for bulk handling of materials, and at the same time minute precision in the manufacture of tablets which may be as small as four human and animal use are produced.

Mechanical mixing, granulating, drying, blending and compression of the tabletting materials are all designed with emphasis on building up to minimise handling. A feature is the degree of isolation of production to avoid cross-contamination.

Enclosed areas with flush walls have built-in vacuum and hose services for washing down from ceiling to floor. Employees change protective clothing as they move from one product to another. Temperature and humidity are closely controlled, and compressing operations are controlled mainly from outside the cubicles to minimise the exposure of operators to noise.

The building, which is the third stage of a £15m investment programme at the centre, incorporates an air tube system to transfer samples to an independently administered laboratory from different stages of manufacture.

A special air conditioning system filters air on the way in to eliminate dirt from the atmosphere, and on the way out prevent the escape of dust. Positive air pressure is maintained in process corridors and negative pressure in the individually enclosed manufacturing areas to keep the powders where they belong.

Main body of the tablets is composed of lactose, which is stored in containers holding up to 13 tons. When the ingredients have been dry mixed, a granulating station is added. Granules are then dried in specially designed fluid bed driers, taking batches weighing up to 200 kg, and removing up to 30 kg of liquid in 30 minutes. The granules are removed by vacuum transfer to the sieving stage and compressing machines.

LAINING

for tomorrow's BUILDING, CIVIL & INDUSTRIAL ENGINEERING

ELECTRONICS Packs in the detail in colour

EMPLOYED in a new colour display monitor from Crow of Reading is a Japanese tube with high resolution shadow mask that has a colour dot spacing of only 0.21 mm—about four times as many elements per unit area as a standard high-quality broadcast colour monitor tube.

This HIREM/S55 monitor, made by Crow-Barco in Belgium, can resolve more than 1,000 TV lines; up to 1,300 is feasible, which is twice the acceptable figure for normal high quality work.

To exploit the CRT's abilities the monitor operates at a scanning rate of 575 lines 50 field/sec., thus providing the same level of resolution in the vertical and horizontal directions.

The important aspect of the system to the data industry is that for alpha-numeric and graphic displays the screen is able to carry about twice the information that can normally be shown. Screen size is 14 ins. More about the monitor which has already been used by Plessey Radar and the Mullard research laboratories, from P.O. Box 36, Reading RG1 2NB (0734 595029).

Prepares components

ELECTRONIC DEVICES which have to be wired into a printed circuit board are often supplied in handi-cams. A machine has been developed which cuts the leads from the component to length, and puts in a 90 degree bend, while releasing the item from the belt.

Operated by hand, each turn of the crank cuts and bends the wires on 24 components. Wire tail length can be varied from 3.25 to 9.25mm, symmetrical or asymmetrical wire lengths and bend widths can be produced, and the wires can be cut without bending. Distance between bent wires can be varied from 5 to 40mm.

Components up to 14mm diameter with wire diameters up to 1mm, and a maximum overall length of 65mm, can be handled. Minimum length from the end of the device to the bend radius is 1.2mm and wire cutting can be adjusted between 2 and 20mm. The machine, which has a maximum production rate of 30,000 pieces an hour, is claimed to be 30 per cent cheaper than competitive equipment.

More from Adcole Products, Gander Road, London SW4 6LH (01-622 0291).

SERVICES Lift truck courses

SKITTING UP of a section for training fork lift truck drivers has been announced by Transport Driver Training (Essex) of Sandown Park, Essex, Surrey (78 64183).

Two training courses are offered, one of five days for novices and the other a three-day course for drivers who have already had some experience.

The courses are held at a warehouse complex on the Barwell Trading Estate at Chessington, Surrey.

Low cost power generation & motor control centres

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ISTITUTO BANCARIO ITALIANO

BALANCE SHEET AS AT 31ST DECEMBER, 1976

Annual General Meeting of 4 April 1977

On 4th April, 1977, the Members' Annual General Meeting, presided over by Cav. Lav. Dr. Ing. Carlo Pesenti, approved the Balance Sheet and accounts to 31/12/76 showing a net profit of Lit. 3,564,733,518, and authorized the distribution of a dividend of Lit. 300 per share. The rest was assigned to reserves.

The Bank's Capital and Reserves amount now to Lit. 58,800,000,000.

In spite of contingent difficulties that characterized 1976, the Bank was able to carry out its programme, achieving its main aims. Lira deposits show an increase of 26.73 per cent, of particular interest appears the increase of 38.72 per cent. in savings deposits. Total funds managed now reach Lit. 2,632,000m. against Lit. 2,077,000m. in 1975.

Cash investments rise from Lit. 1,002,000m. to Lit. 1,138,000m. in the limits as provided by the new regulations issued during the year by the Banca d'Italia.

The Bank's foreign trade activities have been more than satisfactory, in spite of particularly difficult conditions.

Remarkable increases were shown in both exports (+43 per cent.) and imports (+31.7 per cent.) activities; in particular the issue of export permits showed an increase of 29.6 per cent.

In the Securities sector good results have been obtained in fixed interest securities, while there was a drop of activity in the Shares Sector owing to the savers' caution. The opening of a number of new Offices

ASSETS		LIABILITIES	
CASH: in hand, coupons and other demand items	71,661,958,285	CUSTOMERS' ACCOUNTS: -Savings deposits	619,520,913,583
Available balances with banks	703,055,332,232	-Demand deposits	1,062,291,718,440
Deposits with central bank			1,681,812,632,023
INVESTMENTS: -Ordinary treasury bonds	20,765,437,100	BANKING CORRESPONDENTS AND BANKS: -Italy	750,254,372,370
-Other Government Securities	19,448,215,740	-Abroad	200,876,400,241
-Bonds	305,490,004,930		951,130,772,611
-Shares	2,044,601,418	Required deposits for payments abroad	2,632,943,404,634
-Holdings	1,473,685,539	Advanced with central bank office	82,436,434,931
CREDITS TOWARDS CUSTOMERS: -Current accounts and advances	136,515,894,550	Drafts issued	10,776,778,482
-Loans and other operations	696,913,629,513	Customers' bills for collection	35,730,770,122
-Contingent	238,172,882,729	Accounts with branch offices	75,813,730,318
-Advances to importers for required deposits	8,058,557,336	Sundry Creditors	10,272,837,426
	59,138,114,459	Tax charged to third parties	47,452,729,748
	1,138,809,077,587	Accounts and repayments	24,591,304,599
CREDITS TOWARDS BANKS AND CORRESPONDENTS: -Italy	29,313,283,822	Staff severance fund	12,224,895,183
-Abroad	192,616,689,028	Tax fund	3,100,000,000
	221,929,972,850	DEPRECIATION FUNDS: -Premises	3,279,981,430
Credits towards controlled and associated companies		-Plants	2,086,036,023
Accounts with branch offices	7,607,895,436	-Equipment and Furniture	7,688,540,173
Treasury tax credit	15,159,121,319	CAPITAL: -Capital stock	10,000,000,000
Sundry debtors	16,175,208,985	-Statutory reserve	2,384,704,638
Premises	43,107,646,798	-Extraordinary reserve	16,615,295,362
Plants	24,516,245,284	-Credit risks fund	18,000,000,000
Equipment and furniture	2,869,088,189	-Monetary revaluations reserve	7,300,000,000
	3,277,477,978	law no. 576 of 2/12/75	2,442,672,111
Bills for collection	32,900,664,819	-Taxed funds and reserves	56,742,672,111
Staff severance fund investment	400,037,707	Undistributed profit brought forward	45,960,552
Accruals and repayments	16,547,907,221	Profit for the year	3,564,733,518
LIABILITIES OF CUSTOMERS FOR ENGAGEMENTS: -Bills rediscounted	19,195,000,000	LIABILITIES FOR ENGAGEMENTS: -Bills rediscounted	19,195,000,000
-Letters of credit, acceptances, guarantees, endorsements, security deposits	512,060,560,210	-Securities to be received and delivered	22,240,125,446
-Securities to be received or delivered	22,240,125,446	-Forward exchange bought and sold	812,729,848,753
-Forward exchange bought and sold	812,729,848,753		1,366,225,534,409
	1,366,225,534,409		4,387,688,440,616
CONTINGENT ACCOUNTS: -Securities and assets on deposits	494,037,713,698	CONTINGENT ACCOUNTS: -Depositors of securities and assets	494,037,713,698
-Third parties for securities deposited	170,450,378,656	-Securities with third parties	170,450,378,656
-Directors' surety bonds	2,200,000	-Directors' for surety bonds	2,200,000
	664,490,292,354		664,490,292,354
TOTAL	5,052,178,732,970	TOTAL	5,052,178,732,970

ROUTINE IS MOVED OFF THE COUNTER

MEETING the banking community's constant quest for greater cost-effectiveness in the automated equipment now finding its way into bank branches, NCR has brought out a self-service main-alone terminal which will allow customers to carry out practically every routine operation themselves.

NCR 1770 will take deposits, give withdrawals, transfer funds between accounts, give information on balances and accept bills for payment. Each user has to take is indicated on the unit's display.

For use in a secure area, the terminal will take a great deal of basic routine off the hands of the cashier and up to eight of them can be operated from a single microprocessor so that the data processing burden imposed is not very great. The micro can be linked to a central banking computer via an integrated asynchronous modem so that transactions can be processed centrally they occur.

Where required, data would be captured on cassette and processed later.

The two basic models have either a full display or a narrow band CRT.

NCR, 206, Marylebone Road, London, NW1 6LY. 01-723 7070.

HOOLDING THE USER'S HAND

FIRST desk-top model from Computer Ancillaries, the MAEL 2841 microcomputer, will be joined shortly by another first, a desktop keyboard floppy disc data entry unit introducing the company to this sector of the data processing market.

The 2841 can accept double-density discs which can be IBM 3741 compatible if required. It also can communicate with other equipment available from CAL, such as the Jacquard video-computer or the M-ONE stock control machine.

Tested accounting packages are available for the new unit and a basic inventory or stock control package would cost £500 while a workday version of the machine itself would come to around £8,500.

MAEL 1941, the data entry unit, can use cassette as well as floppy disc and in its basic form costs £3,500.

This applies to a unit with a 4K micro display and keyboard and single cassette facility. It can have printers, extra memory and IBM interfaces as options and should prove of interest to computer bureaux and their customers.

CAL is at 48, High Street, Egham, Surrey. Egham 6455.

By agreement between the Financial Times and the BBC, information from The Technical Page is available for use by the Corporation's External Services as source material for its overseas broadcasts.

COMPUTING Routine is moved off the counter

FIRST to obtain U.K. Type Approval because it meets the new Marine Radar Reflector Performance Specification, 1977, recently issued by the Department of Trade, is a spherical radar reflector designed and built in Japan.

For maritime safety, small boats, yachts, buoys, etc., should be clearly identified by radar-equipped vessels. The new British specification resulted from recommendations made by the Intergovernmental Maritime Consultative Organisation that all vessels under 100 gross registered tons should be fitted with a radar reflector of a determined minimum performance.

Called Lesraf, the approved device is 12 inches in diameter and weighs about 14 lb. It has 50 steel hulls, or a ten on-ion-like construction consisting of a number of concentric spherical shells, each of which has a different dielectric constant and thickness. These shells cause the radar beam to be focused on to an outer metal band which reflects the energy back to the transmitting source. No power supplies required.

States to be suitable for all applications where a radar target echo needs to be improved, it produces the equivalent of an almost 10 square metres effective radar echoing area in air arms, which allows it to be detected on the radar screen on any ranging at a distance exceeding five nautical miles when mounted 16 feet above water level.

For airborne identification, it has 70 degrees reflection cone upwards, giving an effective radar echoing area of 30 square metres. This reflection is equivalent to a ten on-ion-like construction consisting of a number of concentric spherical shells, each of which has a different dielectric constant and thickness. These shells cause

PACKAGING Print design system

DEVELOPED originally for or shading, and completely changing the colour values or elements.

Variations of pattern or colour are carried out on the design console. With the aid of a display screen and light pen. This enables patterns to be seen and altered, as required by the artist, and can preview a finished pattern in various colourways, without the cost of proof runs. The system will handle up to 12 colours, each on a separate film, with half-tones and tints as required. Films are up to 100 x 180 cm.

Advantages include elimination of the labour intensive photographic separation process and of the step-and-repeat camera. For stereography, film images can be produced fore-shortened (or stretched) by any desired factor, from a normal copy, without the use of a special "proportioning" camera.

The equipment is marketed in the U.K. by Anthony Moor, 47 King Street, Seagrave, Leics. (050981-2907).

COMPONENTS Two new converters

SIGNETICS marketing group of Mullard has announced two analogue to digital conversion components.

One is the MC1408-7/8 (for either seven or eight-bit accuracy) for use where the output current is a linear product of an eight-bit digital word and likely applications will be in tracking A to D converters, the digital voltmeters, sample and hold circuits, etc. It can be generators. The device has a maximum relative accuracy of ±0.19 per cent and a typical settling time of 300 ns.

The other component is an eight bit monolithic D to A converter NE6007/5008—a high speed low cost device of advanced circuit design which yields an 85ns settling time with minimum waveform discontinuity at a low power consumption. Matching to within one LSB between reference and full current eliminates the need for full scale trimming in most applications. It can be directly connected to most logic families. More from Mullard House, Torrington Place, London W.C1E 7JLD (01-580 6893).

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The Glenhill Checklist invites you to take an honest look at your company and the offices you work in.

An honest look.
And, unless you've got a company in a million, you won't like what you see.

A list of straight-to-the-point questions helps you pinpoint the problem areas which could be (and probably are) costing you money.

Problems such as absenteeism, high staff turnover, lack of office space, lost paperwork, and many others.

But the Checklist isn't all brutal. It also provides you with a number of possible causes for these problems—and suggestions for overcoming them.

The Glenhill Checklist is free. The areas it illuminates are expensive.

Perhaps you'd rather not know. But remember: even if you ignore them, the problems won't go away.

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The Management Page

EDITED BY CHRISTOPHER LORENZ

The relevance of added value to industry and the nation, and two bonus schemes based on the concept, are analysed by Sue Cameron.

Adding value to Britain

THE LAST year has seen a sudden upsurge of interest in added value — so much so that some of its proselytes are now clearly regarding it as a panacea for most of Britain's economic ills.

It is not a panacea — in the realm of national economics such things do not exist. But a growing body of evidence suggests that the added value concept can be used to considerable effect both nationally and by individual companies.

The different theoretical debates are often fascinating, though sometimes endless. But it would appear that the key factor in the successful operation of added value systems is consistency. As long as a company or a statistician sticks to the same definition throughout, the individual interpretation probably does not matter too much.

Added value certainly has a wide range of applications. It is used to compare such things as the industrial investment rates of different countries, industries or individual companies. It is also used to examine the pattern of wage cost levels over a period of years.

Greater sense of involvement in company affairs and that this, in turn, brings better industrial relations. Negotiations over basic wage rates or reductions in the size of the labour force are said to become much easier simply because there is more understanding of the problems facing a company.

Easy to grasp

At present, added value systems are most commonly used to express individual company results, especially in the "pop" reports designed for employees. Among the organisations that give their results in added value terms are GKN, GEC, Marks and Spencer, Redman Heenan International, Pilkington Brothers and the Financial Times.

Some companies are not only doing this already but are also using added value principles to set up bonus schemes for their employees. Added value pay schemes are far-reaching in their effects for they involve productivity rates, the disclosure of detailed company information to employees and a considerable degree of worker participation.

The ratio of wages and salaries to added value can provide useful statistics for an entire industry as well as for a single company. One way in which these are used is to show the pattern of wage cost levels within an industry over a comparatively long period.

Wage patterns

This is only a rudimentary definition of added value. Industrialists and management consultants will spend hours quibbling over the application of the basic principle — witness the letters page of this newspaper in the last few months. For example, some say that rents should be included in bought-in services while others insist that rents should come out of the added value cake itself.

'it gives employees a much greater understanding of how a business works'

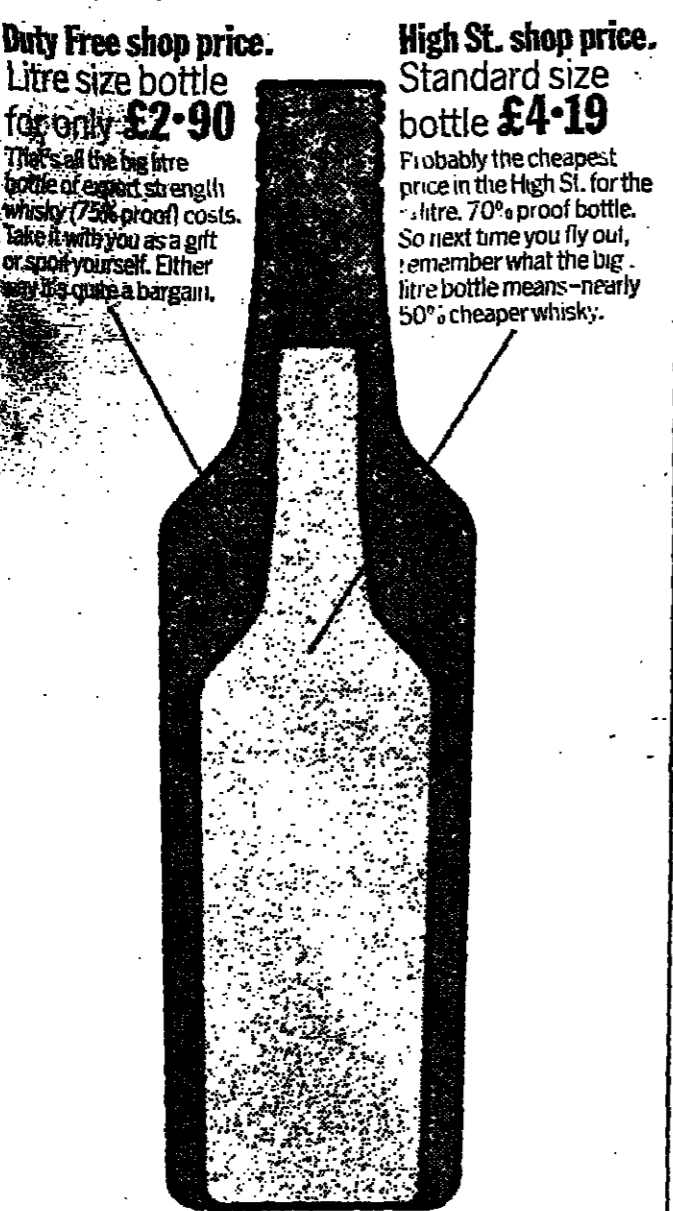
THE Harris and Sheldon group, which is based in Meriden, first set up an added value bonus scheme in 1967, in one of its liftmaking companies. To-day similar schemes are operating in all 15 of the companies in the group, which include Webley and Scott guns and Anuler luggage. Harris and Sheldon claim that the group's overall productivity has increased by at least 15 per cent as a result.

By cutting costs or improving output. When this happens the employees' normal percentage share of the added value will exceed the basic wage bill — in cash terms. Part of this extra money is then given to employees in the form of bonus payments.

force, when necessary, because they know that a smaller workforce will mean bigger bonuses for individuals. At one company, for instance, the 260-strong labour force has been cut by 28 through natural wastage.

only indirectly linked into the scheme — they are paid a bonus that is based on a productivity index.

Whisky £2-90 a litre. Is this a good buy?



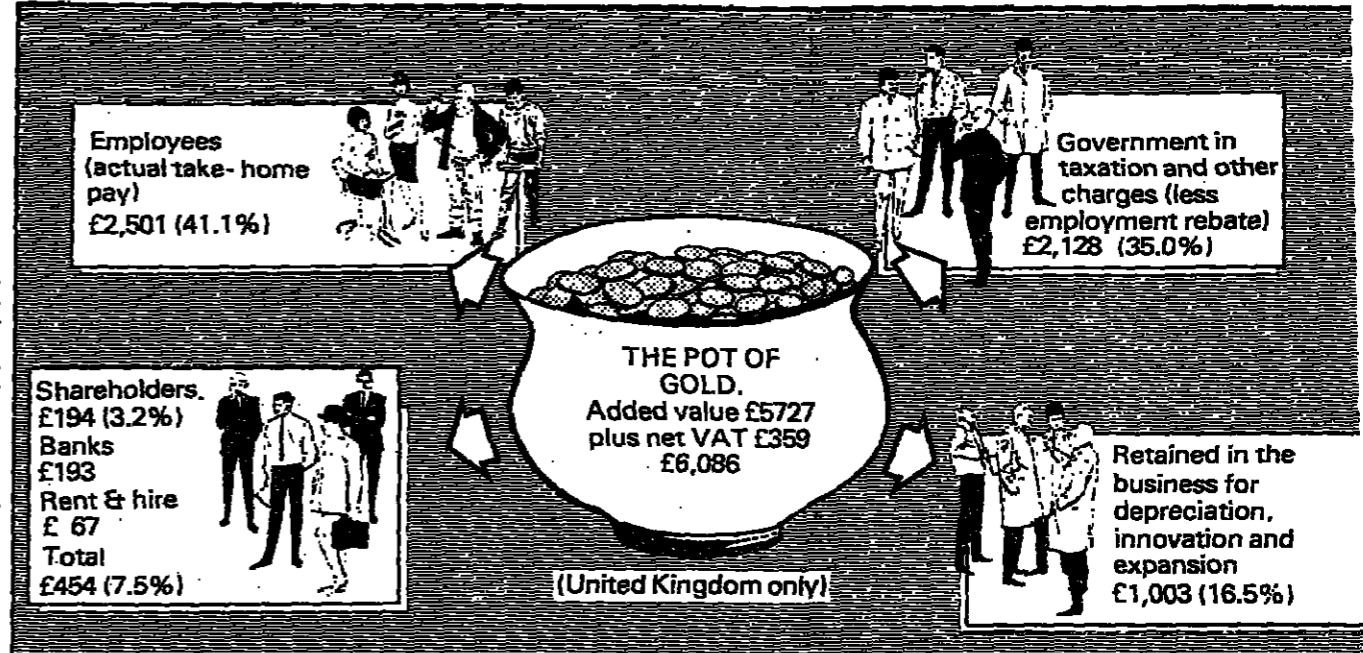
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Our Fishermen Their children

King George's Fund for Sailors looks after them all

In this Country of ours, there is no-one who is not connected with the sea. Half the food we eat comes from across the sea. Many thousands of us, our relatives or friends are past or present members of one of the sea-faring services, or of an industry dependent on them.

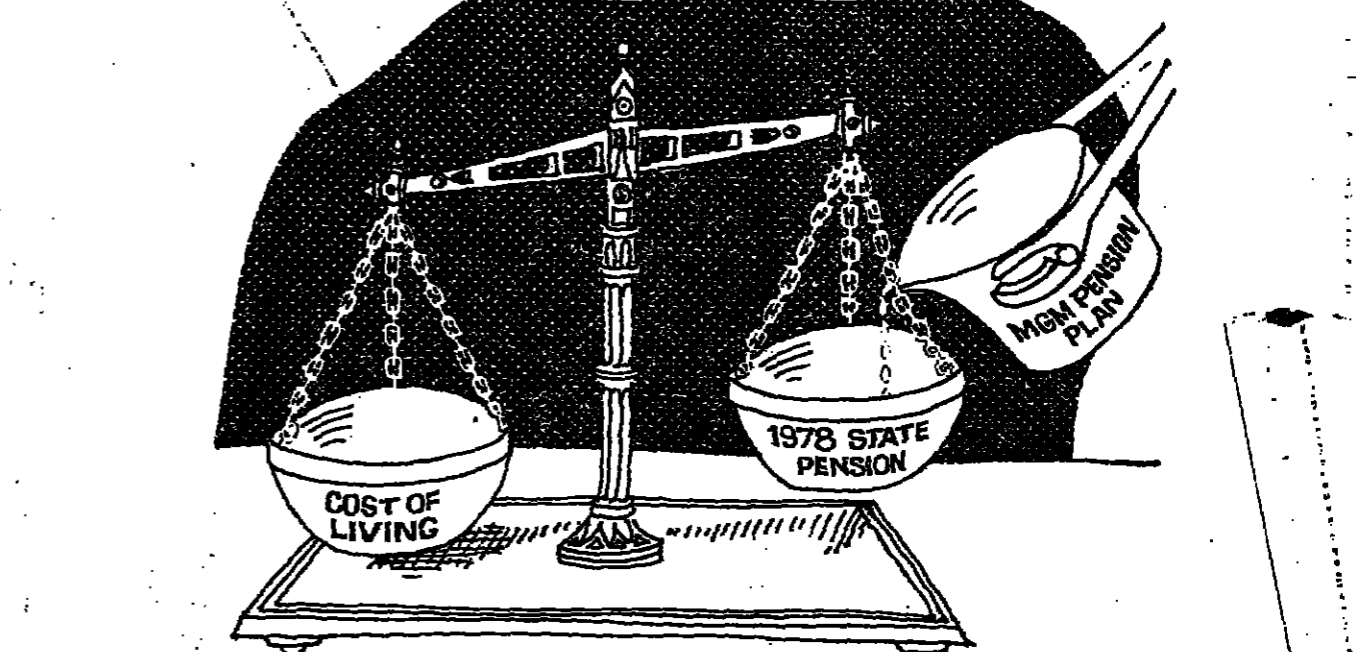
KGFS King George's Fund for Sailors 1 Chesham St., London SW1X 8NF



How a leading British manufacturer, Pilkington Brothers, distributes the wealth it creates — what Dr. Frank Jones called the "pot of gold" considering the use of an added value bonus scheme for its salaried staff.

The British Census of Production shows that the shipbuilding value did not increase or where industry's wages and salaries, the percentage of added value expressed as a percentage of spent on pay was deemed to be added value, stood at 73.1 per cent in 1963, at 74.3 per cent in 1968, 74.0 per cent in 1973 and then rose to 78.8 per cent in 1975.

in added value. Where added value did not increase or where industry's wages and salaries, the percentage of added value expressed as a percentage of spent on pay was deemed to be added value, stood at 73.1 per cent in 1963, at 74.3 per cent in 1968, 74.0 per cent in 1973 and then rose to 78.8 per cent in 1975.



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The name of the plan is 'Design for Retirement' which is apt, because the package has been carefully designed with the future in mind.

To: MGM Assurance, Freeport, Worthing, West Sussex BN11 3BR. (No stamp is needed) Please send me further details of your 'Design for Retirement' Pension Plan. Name: Position: Company Name: Company Address: F77

THE FINANCIAL TIMES

Head Office Editorial & Advertisement Offices: Acken House, Cannon Street, London EC4A 3DF

South Africa: Carter turns on the heat

By BRIDGET BLOOM, Africa Correspondent



Mr. Mondale (left) with Mr. Vorster: In Vienna the talk was tough.

RELATIONS between the U.S. and South Africa may have crossed a watershed, with profound implications for Britain and for Washington's other allies.

The Vice-President only implied the sequel, that the U.S. is prepared to take action designed to force South Africa to change.

South Africa as well as in Namibia and Rhodesia, and that there must be simultaneous progress in all three towards majority rule.

The new administration has separated the three issues, even though as was evident at Vienna, it recognises the existence of a link between them.

View from the Kremlin

EEN FROM MOSCOW, the foreign policy outlook these days cannot be rosy. Ever since the accession of President Carter indeed the initiative has been steadily slipping away from the Russians.

Belgrade To take the GCE first. The Conference was long a Soviet idea. It was resisted by the West until the West had secured the four power agreement on Berlin and also the start of the negotiations on East-West forests (MBFR).

Still waiting for audit standards IT IS REFRESHING that another leading member of the auditing profession, Mr. Ian Davison of Arthur Andersen, has publicly called on his colleagues to take some action to meet the growing public distrust in this and other countries over standards of auditing.

Still waiting for audit standards

After that, a still more distinguished former accountant, Sir Henry Benson, will, it is hoped, provoke some more noticeable activity in bodies already concerned with accounting standards and discipline—the Cross Committee, established last autumn, and the Auditing Practices Committee.

Self-discipline Perhaps the most important question, though, is not what standards are required, but who is to enforce them. There is no reason in principle why the accounting profession, like other professions, should not establish and enforce its own standards, though legislation would be required to make investigation and discipline effective.

Single client Until recently, the professional response when such facts are pointed out has been to argue that no auditing system is fraud-proof, that no regulations can turn bad auditors into good ones, and that similar cases still crop up in countries where detailed codes of practice are enforced.

Friends Is amity breaking out between Whitehall and the Central Electricity Generating Board? Sir Arthur Hawkins, who retired as CEBG chairman earlier this month, was outspoken in his criticisms of the Civil Service (an all-pervading organisation of power without responsibility) but now his successor has appointed a former top Civil Servant to the Board.

On the face of it, these may seem strange conclusions to draw from the Mondale-Vorster meeting, and the events which preceded it. After all, the U.S. administration has stressed its fullest support for Britain's latest efforts for a Rhodesian settlement. It is also working closely with Britain, and West Germany, France, and Canada, to persuade Mr. Vorster to lead Namibia (South West Africa) to independence acceptable to African states and to the U.N.

Neither is there on the surface any fundamental difference on South Africa itself. The U.S. and its allies all condemn apartheid. They do not accept separate development and the installation of black homelands as an acceptable means of giving black South Africans political rights; and they would all like to see change which would give political and economic rights to all South Africans, regardless of colour.

But if this is common ground, major differences of strategy and tactics are emerging. To put it crudely, the U.S. may be about to put its money where its mouth is. It is most doubtful whether Britain (whether under a Labour or a Tory Government) or France or Germany would be prepared to do the same. The U.S. is adopting a policy which will only offer accommodation to South Africa if it will modify and eventually abolish separate development.

Short shrift given An equally important belief, and it seems, one which is equally shared by all those at the top, is that the continuation of apartheid in South Africa is the surest way to encourage Communism in southern Africa. The Carter administration does not believe that the Soviets are necessarily bent on taking over Africa and certainly does not believe that the Africans want to be taken over. But Mr. Mondale gave Mr. Vorster short shrift in Vienna when the South African Premier tried to argue that the West should support his government as a bulwark against Communism.

These are rough words, which apparently destroy South Africa's carefully assembled rationale for apartheid as it has been presented to the outside world. They are followed up by a strategy which insists that there must be change in

believe the parallel to be naive; blacks in South Africa do not even in theory have the legal right to demand equal rights as blacks did in the south; neither was white minority rule there buttressed by large and relatively sophisticated military, police, and intelligence forces.

Mr. Vorster's hope Are the two countries therefore headed for confrontation, and a course which could involve not only the U.S. but Britain too? Both sides say they hope not. Mr. Vorster's main hope, which is likely to be frustrated, is that the U.S. will "see reason" in the next few months and not follow up its harsh words with action.

He carefully skirted objections that the system gave only 10 per cent. of South Africa's land to 70 per cent. of its population, many of whom have always lived in white areas where they have no rights. He defended the pass laws as necessary economic measures of influx control and repeated his views that blacks are better paid, and live better, than in independent Africa. It was African Government so decide. In that event we would take steps to be true to our beliefs and values.

Tales from the Comecon Travellers' tales about the Soviet economic system often feature the little old ladies from the warm Crimea who fly regularly up to Moscow lugging heavy suitcases filled with radishes, or other delights, which they then profitably sell on the street markets and fly back again. Such stories usually illustrate the economic absurdities which can arise when the price mechanism works on an ideological rather than market system.

Ingenious The new British Genius exhibition at Battersea includes among its exhibits a poster proclaiming our innovative talents and ending "What will they think of next?" In a convenient white space beneath, a bright spark supplied an answer: "A living wage?"

MEN AND MATTERS

Peachey's third JP

Sir William Harris, who yesterday became a director of Peachey Property Corporation, has long had a nodding acquaintance with recently deposed chairman Sir Eric Miller, against whom Peachey has served a writ for £130,000. Both are Justices of the Peace in the South Westminster division.



"It reminds me of the war days."

Harris, chairman at Bow Street for 25 years, yesterday became the third JP in the Peachey story. For as well as Miller having 12 years on the bench, usually at Marlborough Street or Horseferry Road courts, Lord Mais, the man who replaced him as chairman and then led the move to get him off the Board, is a City magistrate.

Friends Is amity breaking out between Whitehall and the Central Electricity Generating Board? Sir Arthur Hawkins, who retired as CEBG chairman earlier this month, was outspoken in his

Advertisement for UDT (United Dominion Trust) featuring bullet points about loans, nationwide branches, overseas credits, and competitive rates for deposits.

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FINANCIAL TIMES SURVEY

Tuesday May 31 1977

Aerospace

This year's Paris Air Show should herald the beginning of a new period of growth in both civil and military aerospace developments. For the newly created British Aerospace this should enable it to establish its place in the world markets.

All the trends are upwards

By Michael Donne, Aerospace Correspondent

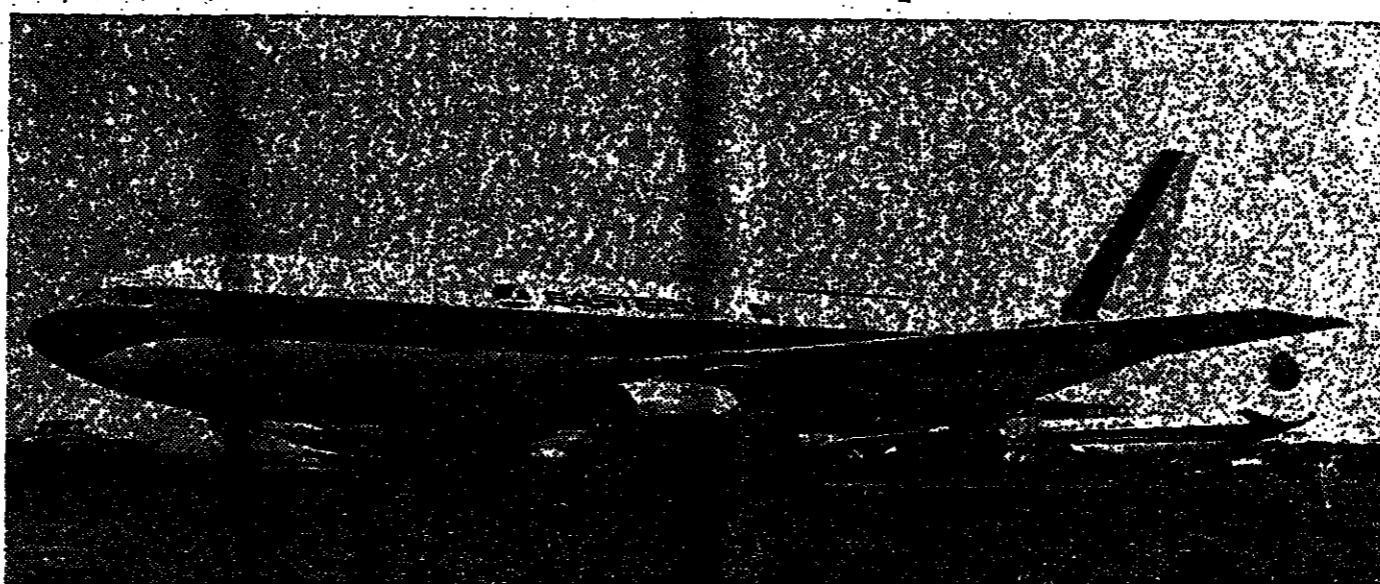
THE WORLD'S aerospace and airline industries go to this week's Paris International Air Show conscious that they are on the verge of a major new period of expansion. The long era of post war development in civil and military aviation ended with the oil crisis of 1973 and the subsequent economic recession. Now, after the hiatus of the past few years, the new era which is about to start albeit a little hesitantly, seems likely to see long-term growth even more dramatic than that which has gone before.

This expansion is likely to be most apparent in the civil field, where most of the world's major airliner manufacturers are forecasting sales of up to 3,000 and 4,000 aeroplanes of all kinds, to meet a doubling of the world's air passenger traffic. This is as far as most aviation forecasters are prepared to go

at this stage, but all the trends are upwards. Already, in some parts of the world, the rate of air traffic growth is well in excess of the average of 6 to 8 per cent per year forecast by the International Air Transport Association, and there seems little reason to doubt that, subject to any unforeseen economic disasters, the growth will continue to rise.

Similarly with military aviation. Despite the emphasis placed in some quarters on the need to cut defence spending, and on Strategic Arms Limitation and Mutual and Balanced Force Reductions, there are now strong pressures being generated, especially at U.S. insistence where NATO is concerned, on the need for a build-up of European conventional forces to counter a similar development by the Warsaw Pact countries. At the same time, spending on armaments in the countries of the Third World shows few signs of diminishing, and in some places is positively increasing. The world's military aircraft and guided weapons industries, therefore, seem likely to find a continuing high level of business, with the numbers of military aircraft to be built in the decade ahead exceeding those of the past, if only because of the need to replace existing ageing and outdated equipment besides meeting requirements for additional weapons. Estimates of likely military aircraft deliveries are difficult to come by, but U.S. sources indicate the possibility of no less than 6,000 combat aircraft being built between now and the late 1980s—a figure which does not seem

unrealistic when it is considered that the U.K., West Germany and Italy alone will be buying no less than 800 of the new Tornado Multi-Role Combat Aircraft to replace existing ageing types in their air forces. Similarly in helicopters, the trend will be upwards, with the emphasis particularly on the civil side, not only in the expanding offshore oil and gas industries but also in the growing corporate business and executive markets. Space research, too, will get increasing attention, as the world recognises increasingly the growing spectrum of uses to which the unmanned satellite can be put to help improve such things as communications, weather forecasting, earth resources monitoring and



Eastern Airlines of the U.S. is leasing four A300 "whisperliners" and will be the first to operate these wide-body jets in the U.S. They will enter service in November.

navigation.

All these trends indicate a substantial and continuing volume of business for the world's aerospace industries in the years immediately ahead.

The big questions are: how will all this business be financed, and how will it be divided between the bitterly competing individual industries in the U.S. who are already manoeuvring for the best positions in the coming struggle, or will it be more evenly divided as a result of more extensive international collaboration, both intra-European and transatlantic, and will help not only to widen markets but also spread

the burden of rising costs?

These are the questions which visitors to the forthcoming Paris Air Show will be seeking answers.

Nationalisation

It is against this background that the positions of the various aerospace industries throughout the world must be examined. Their situations are outlined in detail in this survey. But so far as the U.K. itself is concerned, the most important recent development has been the long-awaited nationalisation of a large section of the aeronautical industry, with the takeover by British Aerospace Corporation, and will help not only to widen markets but also spread

Hawker Siddeley Dynamics and Scottish Aviation. As a result, a vast proportion of the entire U.K. industry is now in Government hands, for Short Brothers and Harland of Belfast is already majority-owned by the State, while Rolls-Royce is wholly-Government owned through the National Enterprise Board. The only substantial airframe elements left outside State control are the Westland Aircraft group of Yeovil, primarily engaged in helicopter and hovercraft, and the Fairey Brittan-Norman light transport aircraft builder of the Isle of Wight.

The new British Aerospace collectively employs some 60,000 workers, and it has on the stocks at present no less than eight

civil aircraft, including the Concorde; eight military types, including the Tornado multi-role combat aircraft; eight guided weapons, and a handful of space research activities, primarily in the unmanned earth satellite field, for scientific and applications technology roles. Of these, many are already international collaborative ventures—Concorde (with France), the Tornado (with West Germany and Italy), the Jaguar fighter (with France), the Martel guided weapon (also with France), and the A-300 Airbus (with France, West Germany, Holland and Spain), while the satellites are mostly for the international European Space Agency.

When allied to the international programme being undertaken by the other companies—such as the work on Fokker F-28s and RB-211 engine pods for TriStars by Short Brothers; the Fairey Brittan-Norman Islanders being built in conjunction with Belgium, Romania and the Philippines; and the Anglo-French helicopter programme by Westland—quite apart from the many international engine ventures being undertaken by Rolls-Royce, the U.K. can reasonably claim that by far the biggest proportion of its total aerospace output is collaborative.

It is the aim of Lord Beswick, chairman of British Aerospace, to ensure that this situation continues, both in the civil and military spheres. In the field, he has been actively engaged in talks on international collaboration across the

broad spectrum of options open to the world's airlines, from the 80-130 seater, through the 120 category up to the bigger 180-200 plus seaters that are likely to be needed for the future. It is likely that these discussions will continue for some time to come, before the number of projects on offer to the airlines can be narrowed down to a number they can use fully digest, and from which they can make up their minds

Imperative

What is imperative so far as British Aerospace is concerned is that it achieves a broadly balanced programme of new civil activity within the next year or so, with which to replace the now rapidly declining volume of existing civil work on One-Elevens, Trident and Concorde. While the possibility cannot be discounted of British Aerospace "going it alone" on one or more of these civil ventures, if it sees a major market emerging but cannot find a partner willing to accept a share of the inherent risks, the trend is more likely to be collaborative.

Already the salesmen are out seeking orders and possible partners for such prospective new ventures as the BAC X-Eleven, while there are also discussions on a renewed U.K. Government stake in the European Airbus Industrie consortium, and on the possibilities of the major new ventures now mooted as the Boeing 7N7 and 7X7

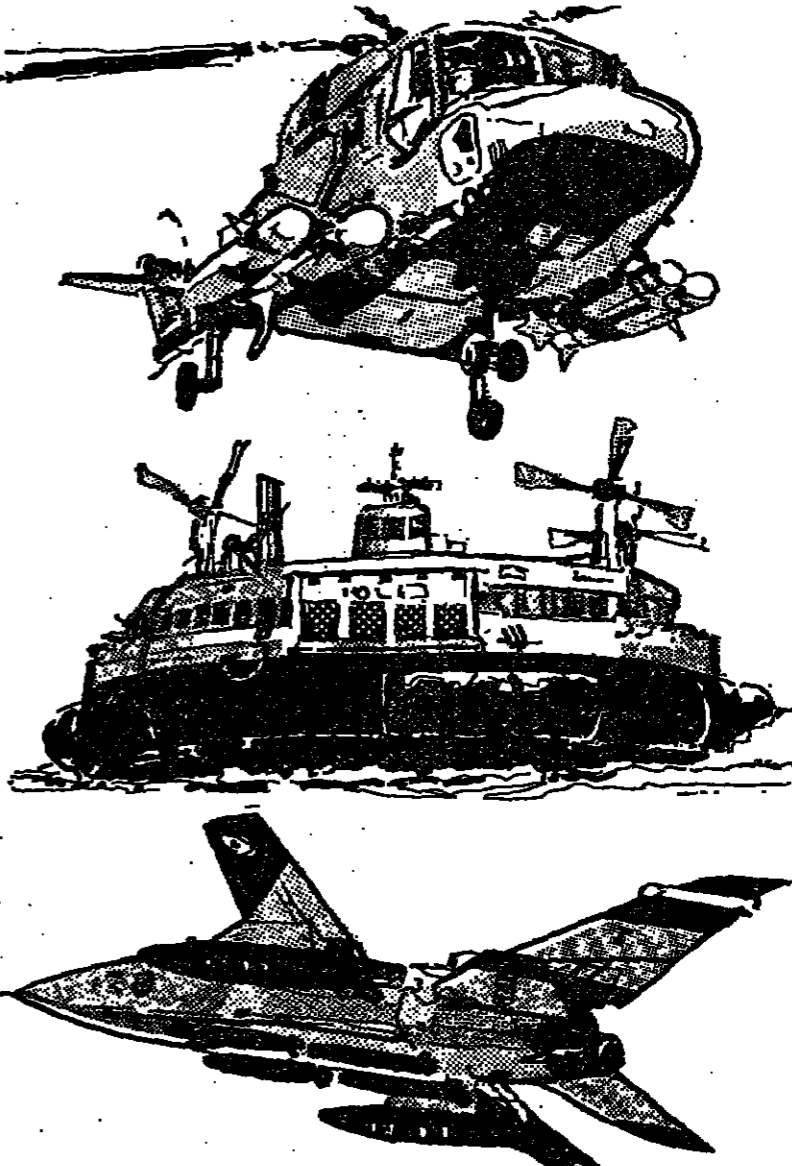
CONTINUED ON NEXT PAGE

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THROUGHOUT THE world's aerospace industries, much attention is now being paid to the problem of what new airliner programmes to undertake to meet the anticipated expansion in air traffic of the 1980s and beyond.

For several years and particularly since the oil crisis of late 1973 and the subsequent industrial and economic recession, there has been a marked slackening of orders for new jets as the world's airlines passed through an exceptionally difficult time of slower, or even in some cases zero, traffic growth, and steeply rising costs. There are now signs that the tide has turned, and that from now on the airlines, and hopefully the aircraft manufacturers, are in for a better time. In the U.S. particularly, the big domestic airlines, with improving financial situations, are phasing out some of the older jets in their fleets, and replacing them with new ones. This, so far this year, has resulted in a sharp inflow of new business for the major American manufacturers, particularly Boeing and to a lesser extent also McDonnell Douglas, although the latter and Lockheed are both still having a tough time in finding new customers for their DC-10 and TriStar tri-jets. This improvement in buying is welcome to manufacturers who have been suffering considerably from the hiatus in buying of the past few years, and as a result, both Boeing and McDonnell Douglas have recently announced increases in the production rates of their jets, especially the short-to-medium haul Boeing 727 and McDonnell Douglas DC-9, to become effective by the end of this year and early next.

Expansion But the fact is that the airlines, while agreeing on the likely expansion, and on the eventual need for quieter and more fuel-efficient aircraft, are in no hurry to become enmeshed in the manufacturers' plans. They argue that they have not yet experienced a long enough period of high profits to replenish their coffers or to encourage the financial institutions to lend them the large sums necessary to pay for big new fleets. Moreover, they are finding the large number of new designs on offer by the manufacturers confusing, while there are different ideas among the airlines themselves as to precisely what they want to see in terms of range and payload performance, as well as widely different time-scales of need. They are to a large extent in a vacuum on their new ideas for the future. They are having to woo airlines to buy airliners they do not really want with money they do not have.

This situation has some serious implications for the manufacturers, none of whom is at present able to say when any of their proposals are likely to be given the go-ahead. Boeing, which is working on two concepts—the 7N7 plan for a twin-engine jet, and the 7X7 plan for a family of three-engine airliners—is not yet able to say which of these two it will build first, and development is proceeding simultaneously on both, with over \$100m. spent so far. The company says, however, that it is sufficiently far down the road to be able to settle on either, depending entirely on the way the market itself moves. Boeing's problem is that no matter which of its new ventures it launches first, it will be bound to either kill off entirely, or at least hurt badly, the sales of the 727 and perhaps also its smaller short-range 727, at a time when these are still selling well. For its new ventures, in their various versions, cover much of the range—payload performances of those older jets. Thus, Boeing has to be particularly careful of assessing its market, and it is certain that it will not move until it has "launched orders" from at least two and preferably three major airlines, preferably inside the U.S. The development costs are so high—\$850m. for the Boeing 7N7 and \$1.5bn. for the 7X7—that Boeing would in fact be risking its entire net worth in launching either programme. McDonnell Douglas is in a similar position. It is working on three basic new ventures. One is a stretched version of the DC-9, called the Dash 55, intended to carry 134 passengers up to 1,850 nautical miles. This will cost about \$100m. to develop and a decision is likely to be taken later this year. The second venture is the DCX-300, a 200 passenger twin-engine design derived from the DC-10 and capable of carrying its load over 1,800 nautical miles. The third is a Super DC-10, a stretch of the existing model to carry up to 335 passengers. McDonnell Douglas also has some longer-term plans, for a civil derivative of its YC-15 four-engine freighter now under development in an Air Force competition with Boeing to find a replacement for the ubiquitous Lockheed Hercules.

The third major U.S. manufacturer, Lockheed, which is already building a long-range Dash 500 version of the L-1011 TriStar, has plans for two new derivatives—the Dash 400, a three-engine, 200-250 passenger aircraft capable of 2,700 nautical miles range, and a Dash 600, a twin-engine aircraft with the same range-payload performance. A feature of the plans of all three U.S. manufacturers is international collaboration with Western Europe, and perhaps also other aerospace companies as far afield as Japan. The reason is that the cost of the new ventures is so great that it can be spread the wider the market, the better. This also helps to ensure a wider market, on the assumption that if foreign governments put up the cash to enable their aircraft industries to participate in the U.S. programmes, they will also insist on their flag airlines buying some of the resultant products. Thus, every civil manufacturer in the U.S. has been discussing collaborative possibilities with every manufacturer in Europe. These discussions have not only ranged round the Europeans taking a share of the U.S. venture, but also the possibility of companies like McDonnell Douglas participating in the Dassault-Breguet Advanced Super Medium Range Mercure, or even the European A-300 Airbus. Boeing has held discussions with Aerospatiale of France. So far as the U.K. is concerned, the newly nationalised British Aerospace Corporation has been discussing possible collaborative ventures with all these U.S. companies, with a view to participating in the U.S. programmes, they will also insist on their flag airlines buying some of the resultant products.

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NEW AIRLINER DESIGNS UNDER CONSIDERATION Table with columns: Aircraft, Seats (approx.), Max range (approx. nautical miles), Possible engines.

* Engine makers are: Rolls-Royce (RB211s, 535s and 432s); General Electric (CF-6 and CF-680); Pratt & Whitney (JT-9Ds, JT-9Ds and JT-10Ds); and CFM International (CFM56s).

of the more significant proposals believed to be that by Boeing for the U.K. to work on wings for either the 7N7 or the 7X7 or both. At the same time, there has been considerable pressure in the U.K. for the Government to rejoin the Franco-German-Dutch Airbus Industries consortium, building the A-300, and perhaps also to link with the Dutch and West German industries on building a new short-haul feeder-liner that could take the place of the Hawker Siddeley HS-146, the Fokker F-29 and VFW-614 projects and programmes.

One of the problems here is what financial contribution the U.K. is expected to make. There has been a suggestion that it should pay an entry fee by contributing something to the past costs of the consortium, as well as financing its share of any future work undertaken. This has so far been resisted by the U.K. It seems clear that there will have to be some substantial further negotiations before any final settlement can be reached. In the meantime, the U.K. continues its discussions with the U.S. industry, and it is possible that at the end of the day, the U.K. will find itself participating in more than one international venture—perhaps one in Europe and two in the U.S. or vice-versa. Certainly, the U.K. wants to work across the entire spectrum of civil aerospace, with particular emphasis on the 80-125 seat, 140-180 seat, and 180-200 seat categories. All this, as we said for certain at the time, is that the talking is still going on, and that it may be some months yet before any final tentative agreements are reached. Every thing will depend upon the way in which the airline market itself moves. But so far, there are no signs of any imminent decisions on the procurement of new jet airliner concepts for the 1980s and beyond.

ideas So far, none of these discussions has materialised into firm commitments. Nor are they likely to do so for some months to come. It is likely that at the forthcoming Paris International Air Show there will be much further discussion between the senior executives of all the companies involved, and that even some major decisions may emerge. One of the problems in the European industry, however, that is giving the U.S. makers some cause for caution, is the high inflation rate prevailing, especially in the U.K. and in some countries (again including the U.K.) poor industrial relations records also. What any U.S. manufacturer must take into account is that by collabor-

ments and public alike as to the justification for such high levels of spending, at a time when other calls on the public purse are likely to be rising. It thus behoves the aerospace manufacturing and airline industries to be ready with their answers — otherwise, some part of the funds they need may not be forthcoming. It is against this background that the forthcoming Paris International Air Show will be held. It is likely to prove undramatic in terms of the numbers of new shapes to be seen in the sky over Le Bourget or in the Static Aircraft Park. But it may well prove to be one of the most significant yet held on account of the discussion that will be going on in the chalets overlooking the airfield where the future activities of only a few individual companies may well be settled for years to come. This year's Show was at a watershed in the history of world aerospace development, and although its outcome may not be immediately apparent, it is likely to be for many years to come.

Michael Dwyer

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Upwards CONTINUED FROM PREVIOUS PAGE

families of jets, or the no sudden changes, but that eventually he foresees, two major groups emerging, one concentrating on civil and military airframe work, and the other on guided weapons and other. Both will be obliged to make profits, and it is probable that these two groups will be further sub-divided to create separate sub-groups on civil and military work, and on space and guided weapons. What Lord Beswick is at pains to stress is that no new ventures will be started, civil or military, unless they can show promise of commercial success or are backed by substantial Government contracts (in the case of military types).

Profits Apart from the problems at home stemming from the U.K.'s own aerospace reorganisation, and the need to establish new collaborative relationships for the future, the world's aerospace industries collectively have several other major problems in the years ahead. One is the need for adequate funds with which to finance the anticipated growth. So far as the airlines are concerned, the established financing institutions, such as the banks and insurance companies, will be looking for a sustained period of profits before they will be ready to lend the vast sums needed to build and buy new airliners for the future. On the ground, Governments will find themselves under pressure to provide funds for the improved infrastructure that will be needed—such as expanded or even new airports, and improved safety and en route navigational aids. They will be pressed for such funds at a time when the world's aerospace industries will also be seeking more cash to finance the new military aircraft, and guided weapons developments that lie ahead. Collectively, therefore, the cash requirements of the world's aerospace and airline industries in the years to come could be far in excess of the sums spent by those industries hitherto. This, in turn, is likely to raise questions on the part of govern-

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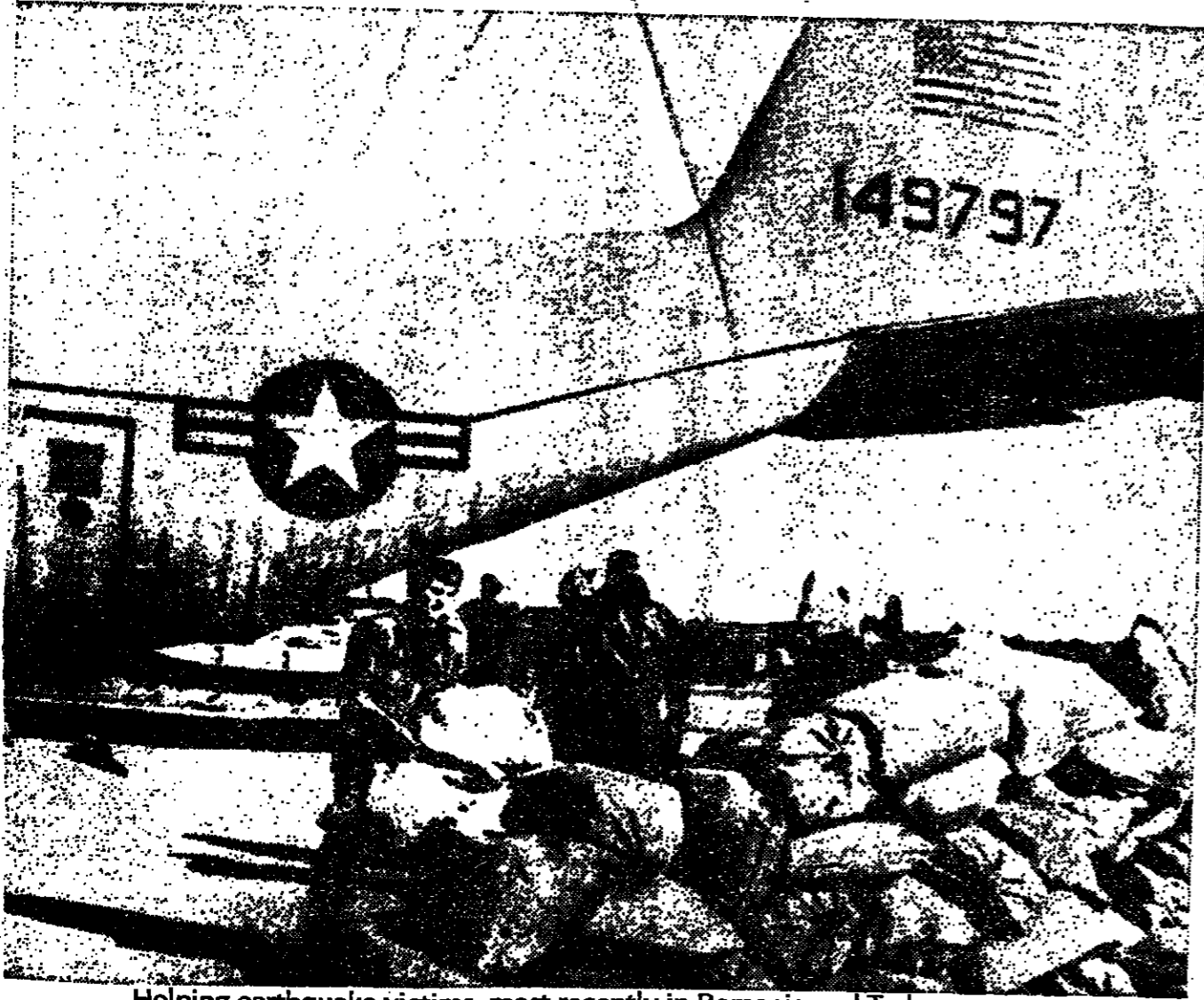
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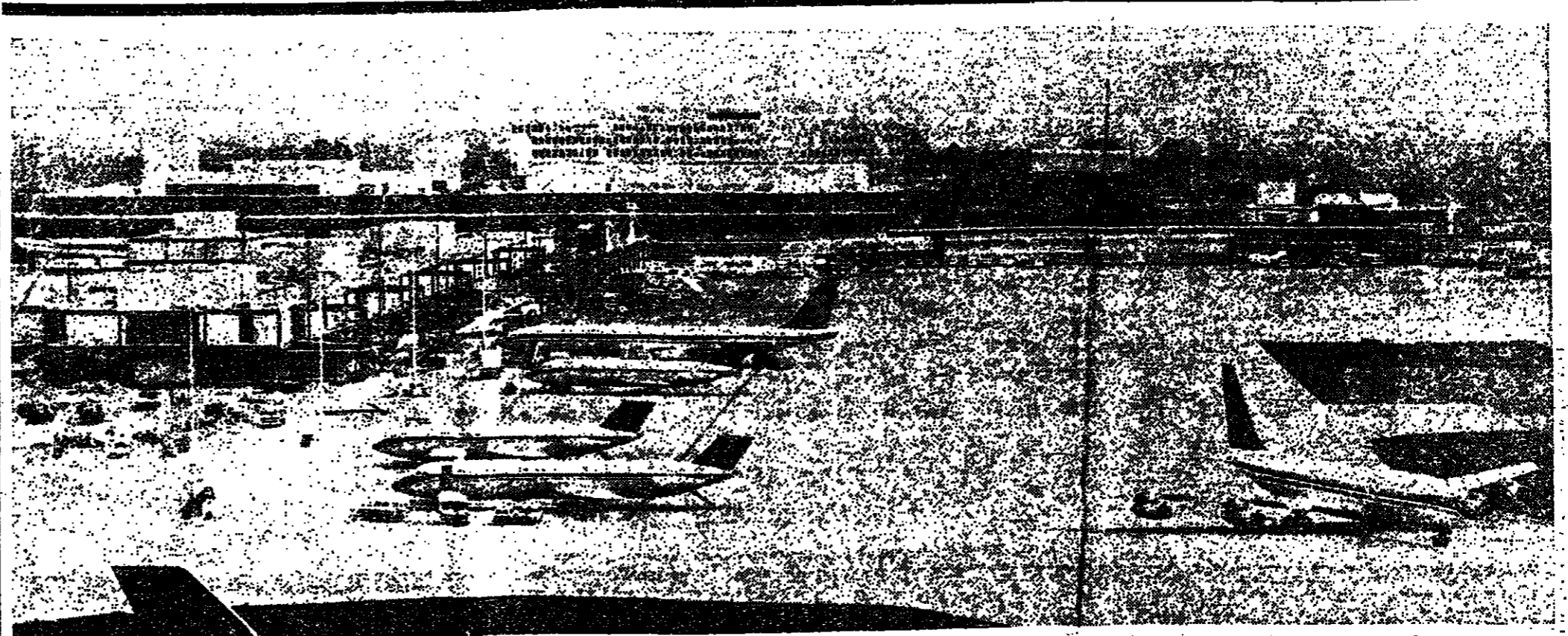
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A major £100m. redevelopment programme at London's Gatwick airport is now nearing completion, which will enable that airport to cope with up to 16m. passengers a year and thus take much of the strain off London's Heathrow. The picture shows the new Central Pier under construction at Gatwick.

Airports feel the strain

SOME TIME later this summer, the U.K. Government is expected to publish its long-awaited proposals for a long-term Airport Strategy for Britain. This plan, which is being laboriously evolved from an unprecedented scale of consultation between the Government and the various interested bodies such as airlines, the British Airports Authority and local authorities round existing airports and various environmental groups, is expected to show how the Government proposes to cope with the anticipated expansion of air traffic into and out of the U.K. in the period up to the end of this century and into the next. The necessity for such long-term thinking stems from two factors—first, the scale of the anticipated growth, and secondly, the exceptionally long development times involved in airport construction—it can take as much as seven to ten years from initial conception of an airport (or even an airport extension) before it is completed and in regular service. As to the scale of the problem, there is little disagreement: it will be vast, although individual estimates may vary. The Government's own views, set out in the original Consultation Document published in late 1975, have not changed significantly. The document indicated that a total of some 50m. passengers a year might be using the airports in the South-East of England between 1981 and 1986, of which 30m. would be using Heathrow, some 16m. would use Gatwick, 3m. at Luton north of London and about 1m. at Stansted in Essex. The "high forecast" was that this volume of traffic could be reached by 1981. Beyond that, it was estimated that overall traffic might rise further to a level of 58m. passengers a year by 1983, and further to about 70m. by 1986, with further increases thereafter until by about 1990 there might be as many as 100m. or more people a year crowding into those four airports. If that latter forecast proved to be true, it would mean that Heathrow would have to be handling 53m. a year, compared with the present 23m., and that there would have to be massive further expansion at Gatwick to make it capable of handling 25m. passengers a year against its present maximum capability of 16m. At the same time, Stansted would have to be raised to 16m. passengers a year, and Luton to a capacity of 10m. These are, of course, only forecasts of possibilities, but the figures are none-the-less formidable. The first question is: are they likely to be achieved, or are they unrealistic? The answer is that all the current trends in civil aviation indicate that they are likely to be achieved.

The evidence for this lies in the current growth pattern. For the first three months of this year, the volume of traffic handled at all seven airports owned by the British Airports Authority (Heathrow, Gatwick, Stansted, Prestwick, Glasgow, Edinburgh, Aberdeen) rose by more than 10 per cent. with the March expansion alone running at about 14 per cent. over the comparable month a year ago. For the current summer, growth rates of even greater magnitude are expected, and although these may be exceptional in that this is Jubilee Year in which the U.K. might expect an exceptional inflow of visitors, they nonetheless appear to demonstrate conclusively that the recession in world air transport is over, and that from now on expansion is once more the natural order of things. The International Air Transport Association itself accepts this argument, and is forecasting a world average annual expansion of around 8 per cent., although it admits that in some parts of the world the expansion rate may be substantially greater as various regions' economic development proceeds at a faster rate than in the already highly industrialised regions of the world. But even at 8 per cent. a year, the current volume of world air passenger traffic will have doubled by the mid-1980s. This is the likely trend. Only a major economic setback seems likely to interfere with it, and so governments in all countries of the world are obliged to consider what they are going to do to cope with this flood of travellers. For it is a problem that will affect not only airlines and airport authorities, but the entire travel infrastructure, including the hotel and surface transport industries, and the provision of other amenities and necessities of all kinds. The problem of "tourist pollution" will also have to be considered—that is, whether or not there is likely to be a case for limiting the inflow of visitors to any one area at any one time, so as not to destroy the very environment the visitors come to enjoy. For what is also becoming clear is that the majority of these travellers will not be businessmen, but in the class of "visiting friends and relatives" or simply holidaymakers out to enjoy themselves. The U.K. Government has made it clear that it has no intention of permitting this fourth terminal to be built until this recently-increased capacity at Gatwick is more fully utilised. In other words, Gatwick will have to come close to its capacity of 16m. a year before any new terminals will be allowed at Heathrow. This indicates that many airlines currently using Heathrow will be obliged in the years ahead to shift some if not all of their operations out of Heathrow into Gatwick—a situation that is likely to be fraught with political and financial implications. The Government is well aware of this and is trying to encourage airlines to move, rather than force them out to Gatwick. It has the advantage on its side that as congestion grows at Heathrow, many airlines, and passengers too, may well feel the greener pastures of Gatwick beckoning strongly. But even with this shift in traffic from Heathrow to Gatwick, the decision on the fourth Heathrow terminal will have to be taken before 1980, simply because it will take several years to build. Thus, there is another reason for the Government producing its long-term plan this year, so as to get agreement on what needs to be done well before the deadline occurs. Into this situation, also falls the controversial position of Stansted, an airport north of London, with a 10,000-foot runway that is ideal for expansion, but which has not been developed so far because of the concentration on Gatwick and Heathrow. Some years ago, even before the Mappin Airport controversy began, suggestions that Stansted should be developed as the third airport for London resulted in a vigorous opposition campaign, with the result that the idea was abandoned. The Stansted Affair, as it came to be known, was followed by the Roskill Commission, to determine the best site for an airport near London. Roskill suggested Cublington, in the Vale of Aylesbury, but that proposal was abandoned in favour of putting a third London Airport on reclaimed land off the Essex Coast at Mappin. Work began on Mappin, but again environmental objections proved to be so strong at a time also of scarce national resources, that the project was also abandoned in 1974, at a time of oil crisis and industrial recession. But continual abandonment of the successive proposed solutions to the air traffic problem have not either solved the problem or sent it away. As time goes on without a solution, the problem itself is compounding as a result of the improving world economic climate. At the same time, the environmental lobbies round Heathrow and Gatwick are themselves rousing vigorously to "cry enough" and there seems little doubt that they will not take kindly to seeing their own sufferings increased whilst Stansted escapes development.

Capacity

So far as coping in the South-East is concerned, the Government has already completed, through the British Airports Authority, a £100m. expansion programme at Gatwick Airport, south of the metropolis, to raise that airport's passenger capacity from 6m. to 16m. a year, and it is now also negotiating with various foreign governments—the U.S., Canada, Spain and Portugal, for example, with others to follow—on how to increase the number of international services using Gatwick, thereby taking some of the pressure off Heathrow. At Heathrow, a £50m. expansion programme is also nearing completion, which will provide for smoother traffic flows through the three main passenger terminals, with the provision of an underground rail link directly into the Central Terminal Area that will put the airport onto the entire London underground railway transport system. These developments, due to be completed by the end of this year, will raise the capacity of Heathrow from the present 23m. to about 30m. But to enable Heathrow to grow further to the 38m. passengers a year that seems likely to be needed by the mid-1980s, there are plans for a fourth terminal, to be built on the South-East corner of the airport, that will be capable of handling up to about 8m. passengers a year. The U.K. Government has made it clear that it has no intention of permitting this fourth terminal to be built until this recently-increased capacity at Gatwick is more fully utilised. In other words, Gatwick will have to come close to its capacity of 16m. a year before any new terminals will be allowed at Heathrow.

Controversy

The likelihood is, therefore, that in the airports situation in the South-East, there is once again the makings of a major social controversy, with the communities around Heathrow and Gatwick arguing that it is against natural justice for Stansted to be left unscathed, and the lobbies round Heathrow and Gatwick are themselves rousing vigorously to "cry enough" and there seems little doubt that they will not take kindly to seeing their own sufferings increased whilst Stansted escapes development.

Debate

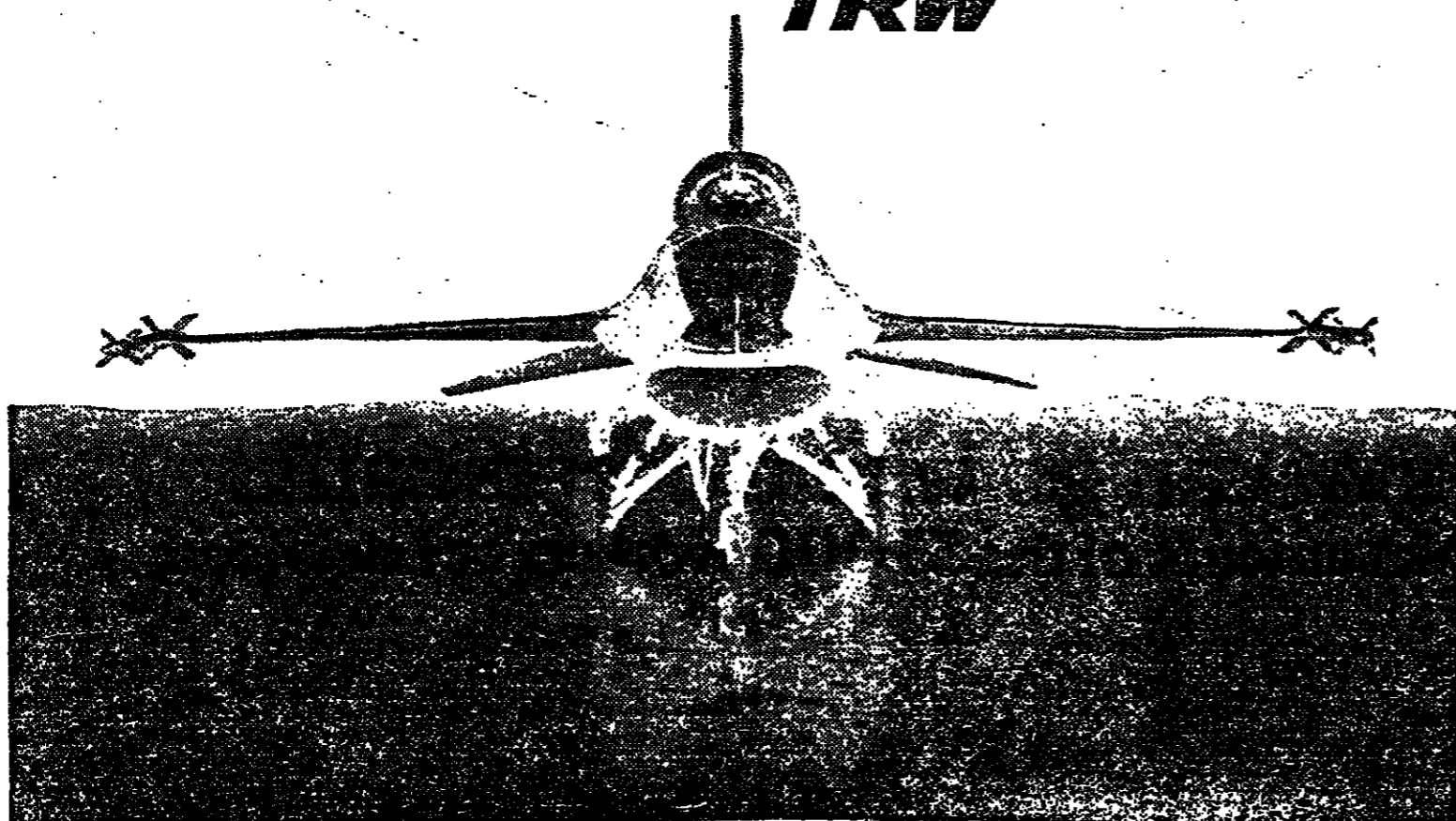
It is against this background that whole airport debate in the U.K. must be viewed. This is why the Government has taken such pains to consult over a long period of time with the various interested bodies, in the hope that it will be able to produce a coherent long-term strategic plan for airport development that will be able to proceed without hiccups caused by objections to various aspects of the proposed developments. In this situation, the U.K. Government is looking at a series of options. One is to see just how far part of this expected traffic growth can be accommodated at the regional airports, either by expanding those airports together with the services they provide, or by building new airports in different parts of the country (for example, in Northern England or in the West Country). The second is to see just how the anticipated growth that the South-East will be called upon to bear can itself be divided between the airports available, or whether even in the South-East the whole vexatious and controversial issue of an additional airport should be raised again. A third option, which no-one talks about very much but which must loom in the background, is the possibility of rationing air traffic, so as to prevent being swamped by visitors and to keep a control upon the rate of growth. This is the most difficult option of all to consider. Air transport is an international business. The pressures felt at home are in fact generated overseas, and for the U.K. deliberately to cut itself off from air transport growth is to cut itself off from economic growth, and to relegate itself to the status of an economic backwater. But nonetheless it is an option that may have to be considered in the 1990s if growth rates accelerate even beyond the present expectations.

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New demands face engine designers

THE WORLD'S aero-engine manufacturers are now facing the most challenging and competitive eras in their history, as a new bout of jet buying to meet their needs from the early 80s through to the end of this century and beyond.

That makes this period so crucial for the engine builders is just the size of the market involved—estimated to amount about \$10bn, or about one-third of the estimated total market of about \$30bn for engines of all kinds between 1985 and 1995—but also because the technological challenges it represents.

There are mounting pressures to quieten engines, to meet new noise legislation in the U.S. and the plans for a stringent international regulations now being devised by the International Civil Aviation Organisation, together with the growing need for less "thirsty" engines. These ensure that the engine builders all the major engine companies (Rolls-Royce, Pratt and Whitney, General Electric, Turbomeca, Motoren Turbinen Union and Fiat) being pushed to the limits of what is needed not for the 1980s, but for the job into the next century.

Engines that are on the drawing boards today will be those which will enter service in five to seven years from now, and probably still be in service 20 years or more ahead. So they must be capable of meeting not only the requirements laid down today, but also those that may be introduced at any time during the period between now and the end of the century.

The engine designers in the engine companies are already responding to the challenge. But they have one great problem—lack of available cash to do what they want to do, or are unable of doing. It can cost up to \$500m nowadays to develop from scratch a new engine, in the "big thrust" category, say, \$0,000 to \$0,000

Understanding

Both these concepts are worth exploring in some depth, because they are vital to any understanding of the whole future of the aero-engine business. So far as "derivative" engines are concerned, all the world's biggest engine builders, Rolls-Royce and Pratt and Whitney and General Electric of the U.S., have followed this path. Rolls-Royce, which has produced a wide variety of thrusts in its RB-211 engine, ranging from the original 40,000 lbs. up to the latest Dash 524 of about 50,000 lbs is now also working on a "derivative" version of 32,000 lbs called the Dash 535.

Similarly, GE, which has produced its highly successful CF-6 Series with similar ratings, is now also offering the Dash 32 thrust, of around 30,000 lbs. Thus, both these companies are in a strong position to bid for the wide range of new airframe designs emerging from the manufacturers.

At the same time, Pratt and Whitney is moving ahead on its new 29,000 lbs thrust JT-10D engine, also a candidate for

many of the prospective new airframe designs now on offer to the airlines, while the most recent entrant to the business, CFM International (jointly owned by Snecma of France and General Electric of the U.S.) is offering its lower thrust engine, the CFM-56.

At the same time, all the established manufacturers are continuing to offer their existing engines in various thrust ratings—the RB-211, the JT-9D and the CF-6 Series—so that there are almost as many engine variants on offer to the airlines as there are airframes. Just what final combinations the airlines will choose for their aircraft of the future remains to be seen, but what is already becoming clear is that the engine side of the business will be the pacing factor in new aircraft decisions.

For while the airframe builders can produce some substantial innovations in design to improve range/payload performance, such as "supercritical" wings with improved airfoil shapes to reduce drag and thus help improve fuel consumption, it is really the engine makers who will be ultimately responsible for the major breakthroughs in noise and lower fuel costs.

Within this overall situation, there are some significant engine developments worth considering more closely, because they are likely to be heard of frequently in the future. One is the JT-10D, originally a joint development by Rolls-Royce of the U.K. and Pratt and Whitney of the U.S., but now solely the responsibility of the latter company. The partnership between them was dissolved recently on an amicable basis, simply because of a divergence of view as to the likely requirement for the next generation of civil aircraft.

Pratt and Whitney felt that 29,000 lbs thrust was about the right level at which to aim for the future, whereas Rolls-Royce came to believe that 32,000 lbs was more logical, and that this

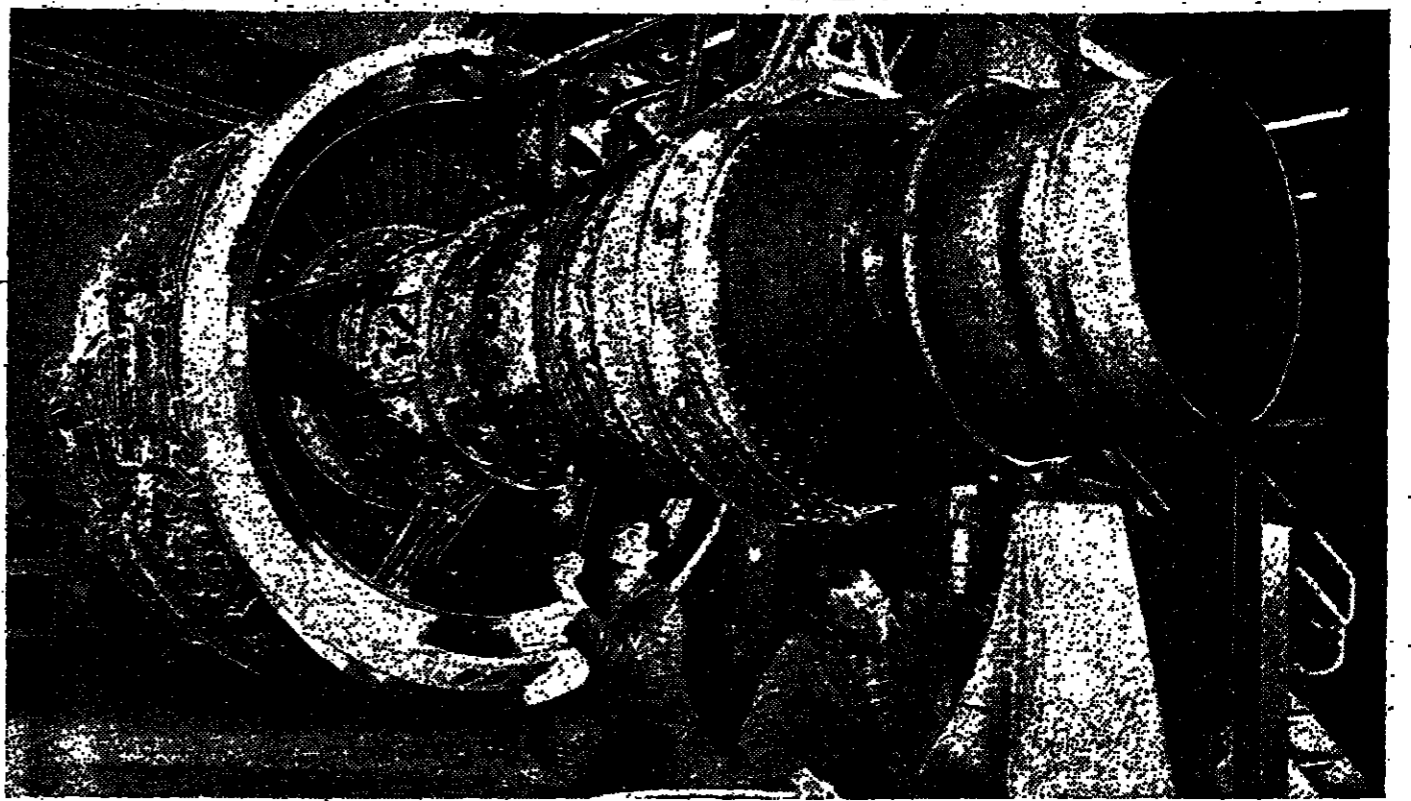
could be achieved just as conveniently by derating its existing RB-211 engine (in the Dash 535 version) as by developing a totally new powerplant like the JT-10D. Henceforth, each company will be competing in the market for the next generation of jets with its own products. Rolls-Royce with the Dash 535, and Pratt and Whitney with the Dash 4 version of the JT-10D.

The dissolution of this partnership, however, does not preclude collaboration between these two companies on other programmes either now or in the future. They still remain close in many ways—not least on the Pegasus vectored-thrust engine for the next generation of AV-8B Harrier vertical take-off fighters for the U.S. Marine Corps, while it is also being suggested that there might still be collaboration between them on the Dash 535 or further derivatives of the RB-211 family.

Examples

The principle of collaboration, however, is not a new one in the engine business. Rolls-Royce has been working closely for many years with engine manufacturers on the Continent on a wide range of powerplants. Significant examples include the RB-199 engine for the Anglo-West German-Italian Tornado multi-role combat aircraft (which is being built by Turbo-Union, a consortium in which Rolls-Royce is joined by Motoren und Turbinen Union of West Germany and Fiat of Italy), and the Adour turbo-fan engine for the Anglo-French Jaguar jet strike-trainer, being built by a consortium comprising Rolls-Royce and Turbomeca of France.

In addition to this kind of all-European partnership, however, a major new Franco-American collaborative venture has emerged between Snecma, the big French engine company,



Rolls-Royce RB-211 turbofans have take-off thrust ranging from 32,000 to 53,000 lbs. The RB-211-524, seen here, is now entering service in the extended range TriStar and British Airways' long-range Boeing 747.

and General Electric of the U.S., who have founded CFM International, to develop the CFM-56 engine, with an initial thrust of up to 22,000 lbs. The CFM-56 is a significant contender for some of the new airframe designs now on offer to the world's airlines, including, particularly derivatives of the Boeing 707 airliner and prospective long-range versions of the A-300 European Airbus, while it is also being test-flown in the McDonnell Douglas YC-15 AMST.

In the meantime, the world's major engine companies continue to produce derivatives of their existing engines in an almost bewildering number of versions, designed to meet virtually every conceivable requirement, actual and potential, of the airframe manufacturers and the airlines.

One of the most important of these from the U.K.'s viewpoint is the Dash 524 version of the Rolls-Royce RB-211, which has just been given its Certificate of Airworthiness by the U.S. Federal Aviation Administration for use in both the Bpeing 747-200B Jumbo long-range jet and in the Lockheed Series 500 model of the L-1011 TriStar. British Airways is the first airline to order the 747 with the Rolls-Royce engines, and, in the course of test flying, the Rolls-powered 747 set a world record for maximum mass lifted to

6,652 feet altitude, when it took off at a gross weight of 840,500 lbs, or more than ten tons over the 747's normal maximum gross take-off weight.

Pratt and Whitney has also been active in developing new versions of its existing engines. At the same time, a reduction in specific fuel consumption of up to 9 per cent, compared to current models is obtained, along with a significant reduction in pollutant emissions. This higher thrust and lower specific fuel consumption is expected to result in the development of new aircraft with significant fuel savings per seat-mile.

Commercial Products Division, current aero-engine scene. The first is that it is the engine builders who will be setting the pace for the future development of the world's airliners, for it is from them that most of the major savings in fuel and reductions in noise must come. Secondly, that while all the engine builders are interested in, and in many cases also already involved in, the concept of international collaboration, they are not afraid to work alone on a competitive basis in the world market place. Thirdly, that, whether collaboratively or individually, the U.K. aero-engine industry, through Rolls-Royce, has a substantial contribution to make to the future development of the world civil and military aviation. But that contribution will not come cheaply. Aero-engine development is not just an expensive business, but a continuing one. Substantial additional investment is likely to be required in the years immediately ahead, not only for the additional derivatives of the RB-211 such as the Dash 535, but also for new generations of civil engines such as the 432 Series. Only through such investment can the U.K. expect to hold its own in the increasingly competitive era that lies ahead in the world aero-engine business.

Analysis

While Pratt and Whitney has its Dash 209 version of the JT-8D, Rolls-Royce recently revealed that it was also working on a new series of engines in the same broad thrust category of about 19,000 lbs., called the Series RB-432. This family of engines is expected to be suitable for such future airliners as the Hawker HS-125 feeder-liner, and will also rival the Dash 209 and the CFM-56 as a candidate for use in many of the other prospective new airliners for the future. Further details of this new family of jets is likely to be given by Rolls-Royce during the forthcoming Paris Air Show.

Three main points emerge from any analysis of the

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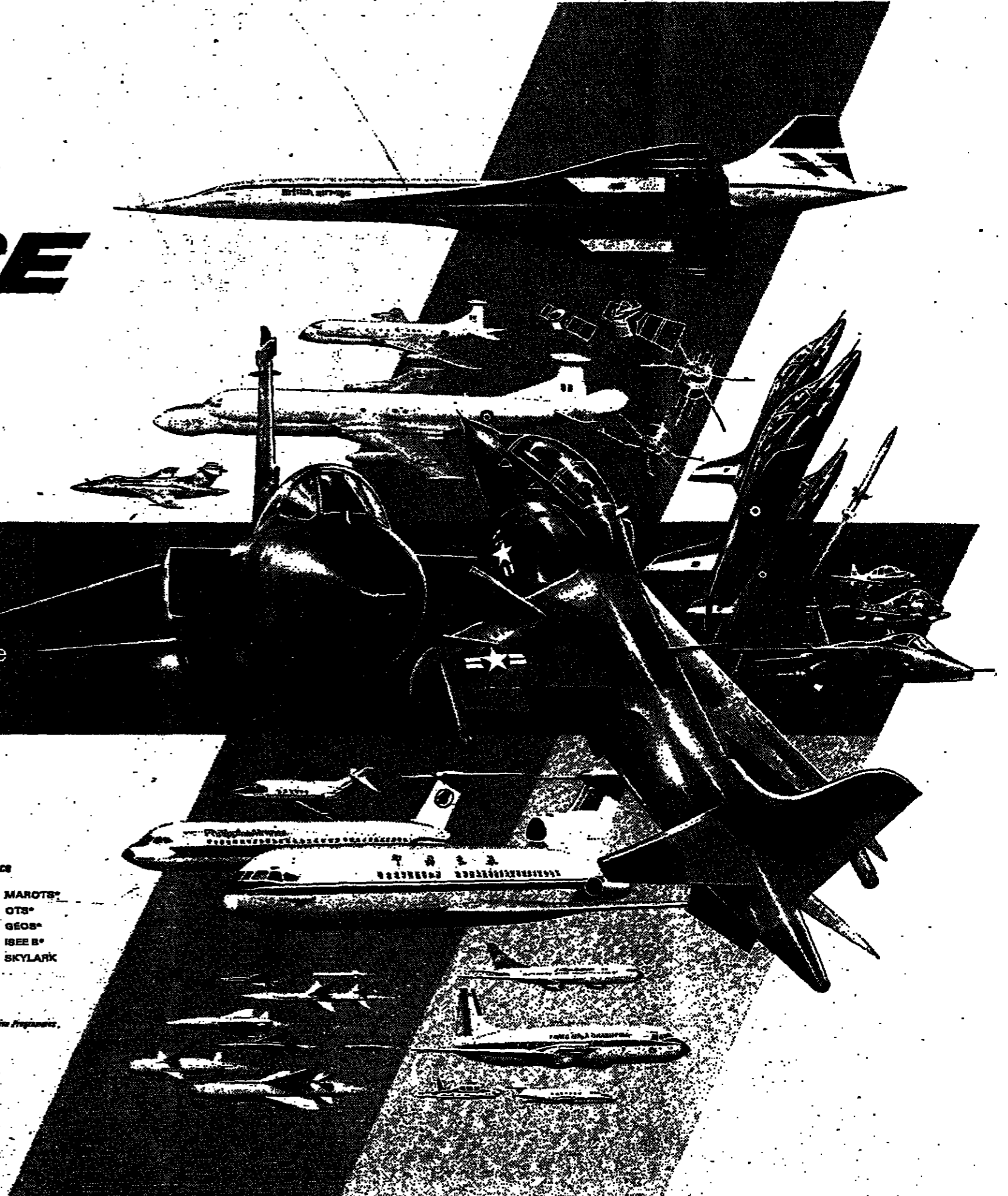
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3 TRIDENT	11 HAWK	20 SKYFLASH	28 GEOS*
4 HS 748	12 AEW NIMROD	21 SEAWOLF*	29 ISEE*
5 A-300B*	13 NIMROD	22 RAPIER	30 SKYLARK
6 HS125	14 BUCCANER	23 SWINGFIRE	
7 JETSTREAM	15 JAGUAR*	24 SEA SKUA	
8 BULLFINCH	16 STRIKEMASTER	25 MARTEL*	
	17 BULLDOG		

*International Collaborative Programmes.



AEROSPACE VI

Concorde fights for its rights



The Anglo-French Concorde supersonic airliner has been in service with British Airways and Air France since late January, last year, on the routes to Bahrain and Rio de Janeiro, and additionally since last May on the routes between London and Paris and Washington. It has achieved a high level of reliability, and passenger acceptance has also been good, with load factors on the transatlantic route running at high levels.

SOME TIME this summer, the Anglo-French Concorde, the world's first supersonic airliner to enter regularly-scheduled passenger service, may be able to land at Kennedy Airport, New York. The long legal battle over the rights of British Airways and Air France to operate the vital transatlantic route between London and Paris and New York is not yet finally won, but some major hurdles have been overcome—one of the most significant being the decision by Mr. Justice Pollock of the New York District Court early this month that the ban imposed on Concorde by the Port of New York Authority was illegal. There is every hope that the end of these legal obstructions is now in sight, and that within the next few weeks the first proving flights into Kennedy will be made, followed soon after by the first regular passenger operations.

At the same time, the objecting airlines have the answer to their fears in their own hands. If they cannot beat the competition, they should try to join them from joining with BA and Air France in operating joint supersonic services—the two European airlines would probably welcome some kind of link-up if it made flights into Kennedy easier. Alternatively, they could join together and lease a Concorde of their own, and put it into operation on the transatlantic route, and fight BA and Air France with their own weapons.

Fears
New York operations will thus join flights to Washington in the two airlines' timetables, and it is certain that, as on the Washington route, the New York flights will revolutionise the Atlantic air travel market, despite the 20 per cent. surcharge on the normal first-class fare that the two airlines will be obliged to charge under the rules of the International Air Transport Association. Already some of the major airlines flying subsonic jets on the North Atlantic have indicated their concern at the prospect of Concorde taking away much of their first-class traffic, and they have sought to prevent the supersonic jet from operating at Kennedy.

This objection is in one sense an accolade for Concorde—the protesting airlines have measured the competition it is already offering on the routes between London and Paris and Washington, and are concerned lest it should continue to take their traffic away when it comes to Kennedy. Conversely, the almost unanimous reaction from the U.S. aerospace industry has been that it is unrealistic for the U.S. to prevent Concorde

from flying into Kennedy. Many top executives of the major aerospace manufacturers have publicly stated that if similar objections had been lodged so forcefully in the past against innovative U.S. aeroplanes—such as the Boeing 747 Jumbo jet, for example—the entire world aviation community would have suffered as a result, while the U.S. itself would not have enjoyed such substantial sales of its jets as it has. Accordingly, they have urged at least a fair trial of Concorde at Kennedy, in the interests not only of Concorde itself but also of all future sales of U.S. civil aeroplanes, subsonic as well as supersonic. They clearly feel that any continuing ban on Concorde in the U.S. will result in the closure of U.K. and European markets to U.S. aeroplanes in the years ahead.

At this stage, it is not possible to give detailed figures for the aircraft's economic performance (although Air France says that last year it lost £26m. in operating Concorde) simply because the route network is not large enough to provide meaningful statistics. British Airways makes the point that the current utilisation with a fleet of four aircraft (a fifth is due for delivery in late summer), amounts to little more than an average of one hour a day, and that until this is substantially improved, Concorde is not likely to show profits. BA says that what it really needs is a daily utilisation of 7½ hours per aircraft giving an annual rate of 2,750 hours per aircraft, with a 60 per cent. load factor. Under those conditions, it is confident the aircraft can become a viable proposition.

This explains why BA and Air France are putting so much emphasis on the need to get Concorde into Kennedy, New York, on a regular basis. The airline's plans, once the final go-ahead is given with no further legal obstacles in the way, is a twice-weekly service each way initially between Heathrow and Kennedy, rising

to three times a week in August, and eventually a daily service each way by September. This slow build up is dictated by the rate of crew training. Currently, the airline has 19 crews trained, and has eight more crews in training who should complete their courses by the end of May. The airline is hoping that it will be able to fly services into Kennedy alongside continued flights into Washington. The current 12 months' trial at Dulles Airport, Washington, ends in late May, and a four-months' data evaluation period is then undertaken by the U.S. Federal Aviation Administration and other organisations. Pending completion of this evaluation, Concorde will continue to fly into Washington. But the U.K. is anxious for the U.S. to say as soon as possible whether or not it is satisfied with the Dulles results, so that the way can be cleared for Concorde not only at that airport, but also to fly on to others in the U.S., such as Dallas-Fort Worth (where BA has an agreement with Braniff for follow-through Concorde flights), linking the Texas airport with Heathrow via Washington.

Extension
Beyond this, BA is planning to start Concorde operations beyond Bahrain to Singapore and on to Melbourne in Australia around the latter part of 1977 and early 1978. At this stage, plans for an extension of those operations to Hong Kong and Tokyo are being considered, but nothing has yet been settled. The possibility of onward flights also into the Pacific to other destinations such as the Philippines and Indonesia cannot be overlooked, but here again, much depends on the progress made with the flights to Singapore and Australia. Beyond these operations, lies the possibility of Concorde flights to such other destinations as Tehran, Johannesburg and perhaps across the Soviet Union to Tokyo. Discussions on these routes have been held

between the airline and the unsold aircraft on the line are, therefore, disposed off, there is little concern, while contacts have also been maintained on the diplomatic level. But so far, the two manufacturers, there are no firm approvals have been obtained, and it seems clear that the countries concerned are generally waiting to see how Concorde performs on the route to New York—and more importantly what the environmental reaction is likely to be there—before committing themselves. A satisfactory period of test programme, and are not at several months' operations into Kennedy, coupled with approval for continued operations in Dulles, will do more than anything else to convince airlines and civil aviation authorities round the world that Concorde is not the fearsome monster it has often been made out to be, but just another aeroplane that can fit into the world's civil aviation structure with the minimum of disruption.

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Spares
This raises in turn the question as to how these aircraft will eventually be disposed of. At this stage, it does not seem likely that any airline will actually buy a Concorde, simply because of the high cost—over £20m. per aircraft, excluding spares and ground support equipment. What seems more likely is that airlines will group together either to buy, or even more significantly, to lease Concorde. The two Governments probably will have to take a decision as to whether to lease the aircraft, other aerospace industries those of the U.K. and France, who have early authorisation for work on the next small batch of aircraft, Nos. 17 to 22, in two flag airlines, BA and Air France, to keep production ticking over at the minimum level. The right, when their competitors are being given the opportunity to buy Concorde out, is that until the remaining of leasing, it is possible, Bahrain with BA, and to

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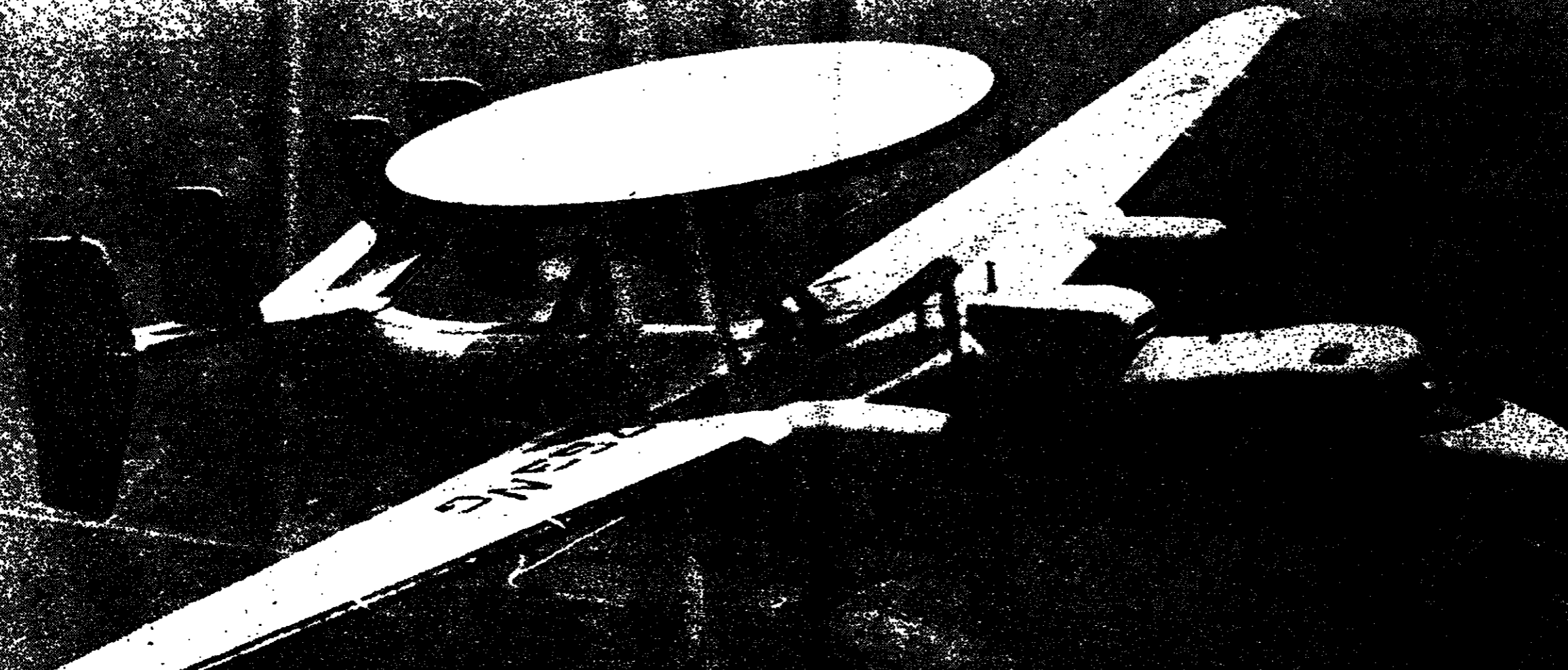
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July 1975

AEROSPACE VII

Airline industry at a watershed



Emery Air Freight now has a fleet of more than 15 aircraft, ranging from DC-8 jets, such as this chartered aircraft seen above, down to small Beech 18s. Between them, this "Emery Air Force" carries over 1m. lbs. weight of cargo world-wide nightly. Mr. John C. Emery, Jr., president, believes that one major stimulant to the growth of cargo business would be a new, more cost-effective cargo aircraft for the mid-1980s.

Freight traffic on the increase

THROUGHOUT THE world, the volume of air freight traffic is increasing, as economies move out of recession and back to an era of growth. The cargo industry within the air transport sector is mixed, with the expansion much more marked in some areas of the world, such as the Middle East, than in others, but overall the air cargo industry is expanding rapidly. This is supported by forecasts that some of the world's major aircraft manufacturers, who are undertaking their own studies of the likely development of air transport for both passenger and cargo work, suggest its latest estimates that it will reach a level of 1 per cent. per annum growth in world revenue-ton miles of freight carried, with a "low forecast" of at least 8.6 per cent. the current world freight business will double in six to ten years and triple by 85.

These forecasts appear to be widely shared by other major manufacturers. This type of expansion could result in some 50bn. revenue ton-miles of freight being performed by air by 85, but Boeing also points out that certain "positive events," such as the accelerated use of structural containers, the approval of new cargo terminal development plans, and favourable changes in rates, could all prove the air cargo development climate and generate growth much greater even than the forecasts now made. Applying these forecasts back to the aircraft market, Boeing suggests that this expansion would result in a demand for 22bn. worth of all go aircraft by 1985, while the air could be increased substantially by a continuation of present purchase trends of "omni" — convertible passenger/cargo aircraft. The recent development likely to encourage freight expansion is the contract rate concept introduced by British Airways and the concept they intro-

duced—with the U.S. Civil Aeronautics Board (the CAA's opposite number in America), which not only refused to authorise their application for shipments entering the country, but ordered the British carrier to "cease and desist" in their use, claiming that they violated U.S. law, were discriminatory against the American carriers as well as small shippers, and were non-compensatory. More recently, in a New York District Court, the CAB applied for an injunction against British Airways, restraining the airline from continuing to apply the rates. Happily for British exporters, the judge refused the CAB's application, but the Board has indicated that it does not intend to retreat, and is planning to take its case to a higher court. So far it has not done so, but the indications are that it is holding its hand until the outcome of negotiations currently taking place between governments of the two countries on a replacement for the current Bermuda Agreement which expires on June 22.

Meanwhile, to the satisfaction of British Airways, practically every major air freight forwarder in the U.K.—and, ironically, several American forwarders operating in the country are among them—as well as several large shippers, have signed agreements with the airline under its contract rate scheme. Also, increasing numbers of shippers and air forwarders in some European countries are trucking their consignments to the U.K. because, even after allowing for the trucking costs, they find the contract rates lower than the normal rates prevailing in their own countries and, in addition, they gain the advantage of favourable currency exchange rates. There has so far been an ominous silence on contract rates from the principal European carriers operating on the North Atlantic, although there are muted indications that both the Dutch national carrier, KLM, and Air France, as well as Germany's Lufthansa, are on the point of seeking the approval of their respective governments to latch on to the concept and introduce their own variants of the British Airways' scheme. The caution which they appear to be exercising probably hinges on the outcome of the IATA Cargo Conference which has been in session for the past month in Vancouver and is on the point of being concluded. They may also be awaiting to see which way the U.S. Civil Aeronautics Board is likely to move on contract rate variants which have been filed with it—after all their earlier protestations about the "BA" scheme—by PanAm and TWA!

Emerging from all the acrimony arising from the bold and imaginative step taken by British Airways in responding to the almost universal call from its competitors, from the forwarders and from shippers that has been heard over the years is clear confirmation that until and unless the IATA airlines can arrive at some agreement any significant growth in cargo traffic may well be hindered. Equally clear is that many airlines regard with contempt the existing IATA cargo rate structure and the inhibitions it imposes on innovative measures aimed at allowing the smooth and rapid development of air freight.

Peter Hering

THE WORLD airline industry is now recovering from the hiatus in its expansion created by the oil crisis of late 1973, and the subsequent economic recession, and there are hopes that from now on the industry will revert to a steady rate of expansion of passenger and cargo traffic. The International Air Transport Association (IATA) has forecast that over the next decade, the traffic carried by its members will grow on average at about 7 to 8 per cent. a year. This means that the current year's traffic volume of about 70bn. tonne-kilometres performed will reach between 130 and 140bn. tonne-kilometres by 1986, or about double the present volume. While this rate of growth is considerably less than the 11 per cent. average a year experienced during the past decade, it is none the less substantial—many industries experience considerably slower growth rates—and will be enough to give the industry some considerable problems both in the air and on the ground in coping with the flood of passengers and cargo—and also in the accounting offices.

The big problem facing the world's airlines is whether this traffic expansion will enable them to make enough money to recover their costs, let alone make profits and generate enough reserves to enable them to buy the new equipment that they will need for the 1980s and 1990s. Figures issued by the International Civil Aviation Organisation (ICAO) for 1975 (the latest full year for which detailed financial results are available) show that the world's airlines collectively lost money, the average result being revenues of 5.03 U.S. cents per passenger-kilometre flown, with costs at the higher level of 5.46 U.S. cents per passenger-kilometre—a ratio of revenue to cost of 0.92. Some routes and areas were significantly

worse than others. The North Atlantic route, one of the most active in the world air transport industry, had a revenue/costs ratio of 0.85 per cent, representing a loss collectively for the airlines of 15 per cent, with revenues of 3.8 cents a passenger-kilometre outweighed by costs of 4.5 cents. There were few really profitable areas—the local South American routes had a revenue/costs ratio of 1.15 and Europe/Middle East Africa a ratio of 1.05, as did the local routes in South and East Asia and South Pacific. Intra-European routes broke even, with a revenue/costs ratio of 1.00 (revenue of 8.7 cents per passenger-kilometre matching costs).

Improved

Preliminary indications are that while this situation has probably improved a little in 1976, and is continuing to improve into 1977, costs of all kinds continue to rise. The measure of the airlines' problem is that over the past five years, the 100-plus members of the International Air Transport Association (IATA) have experienced a cumulative short-fall in their earnings of some \$7.5bn. against what is required to produce an adequate rate of return on their investments to ensure survival. A really dramatic improvement in earnings will thus be necessary to offset this severe shortfall, and at present there is little sign that they are on the way.

Mr. R. R. Cope, the assistant director-general of IATA for traffic and industry finance, said recently that the expected traffic growth coupled with increasingly stringent noise regulations and sharply rising fuel costs (to say nothing of possible fuel supply curbs), will oblige the world's airlines extensively to re-equip in the years ahead. The estimate is that between now and 1986, the world's airlines will need additional capital amounting to some \$80bn. to buy the aircraft needed both to replace ageing existing equipment and meet anticipated traffic growth of which some \$56bn. will be spent on aircraft and the rest on the necessary improvements to ground facilities, such as new hangars, simulators and other items.

The prospects for raising this money, however, appear bleak. The earnings being generated with current fares and cost levels are insufficient to enable the airlines to meet much of the capital requirement out of their own resources. It seems likely, therefore, that the bulk of the money needed will have to come from external financing. This in turn creates another problem, because many of the main external capital sources are disenchanted with the airlines and are reluctant to lend money while earnings, and profits, are at their current low levels. The IATA view is that at most the world's airlines may be able to meet about three-quarters of their capital needs from external sources—both commercial (the banks, insurance companies and other lenders) and political (governments). Together with such internal financing as the airlines can provide, it seems likely that collectively only about 30 per cent. of the total capital needs will be met.

This means that the industry may not be able to buy all the aeroplanes that it now thinks it may need—and which the manufacturers want to sell. This in turn will raise other difficulties. The manufacturers, for their part, will find themselves competing even more fiercely than in the past for the available business. The airlines, unable to buy all the aircraft they need, will be obliged to raise their load factors in order to carry as much as possible of the years ahead. The estimate is that between now and 1986, the world's airlines will need

more difficult for travellers to get the flights they want, when they want them, and the days of businessmen being able to travel at the drop of a hat may end. In Mr. Cope's view "an undignified scramble for seats could develop on some routes... Business travellers will have to adjust their schedules, and pleasure travellers their vacation plans." In the same way that a discount market develops wherever supply exceeds demand, so in a seller's market it can be expected that either prices will rise or queues and shortages, will develop in airline seats—an interesting problem for the regulatory agencies." The whole world air transport system could then also become more susceptible to any unexpected delays. Passengers might have to wait for prolonged periods, because space on alternative flights would simply not be freely available any more.

Realistic

If this future is bleak, it is nonetheless realistic—it is the kind of outlook that many senior airline executives have to consider in their planning for the decade ahead. On the other hand, there are alternative views. One is that the underlying strength of demand for air transport could exceed even the most optimistic current forecasts of the airline industry. For the people of most countries, air transport is no longer a luxury but a necessity—a feature of their daily lives and of their international trade and communications—while some countries in the Third World, deprived of normal surface means of communication, have come to depend upon it as the only link they have with the outside world, and even in some cases for their survival. Thus, the problems of the

airlines become the problems of their governments, who despite differences in attitudes are nonetheless becoming increasingly reconciled to the fact that international air transport is a vital political, economic and even sociological tool, and therefore are becoming more aware of its problems and the need to solve them. In the light of this recognition, it is doubtful whether governments will ever permit their airlines to go to the wall, no matter how acute their financial problems may be. At the same time, the airlines themselves can take some considerable measures to put their own economic houses in order. There is much wasteful duplication in the present air transport system, with an excess of competitive services on many routes, especially in the highly developed aviation regions of the world. A pruning of this situation would undoubtedly result in a substantial saving in resources. This could be helped considerably by a review of current regulatory practices in many countries, especially the U.S., where competition has been allowed to reach unnecessarily large proportions, resulting in a waste of resources of all kinds with only a limited profit for the successful carriers. A reform of regulatory procedures, therefore, not only in the U.S. but also in other parts of the world, might well help to revolutionise the overall air transport situation.

What emerges from all this is that the world airline industry is facing virtually a watershed in its development. An era—that of post-war development—has ended, and a new one is about to start, in which new sociological, environmental, technical and political attitudes will all prevail to fundamentally change the pattern of the industry as it has become known in recent years.

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AEROSPACE VIII

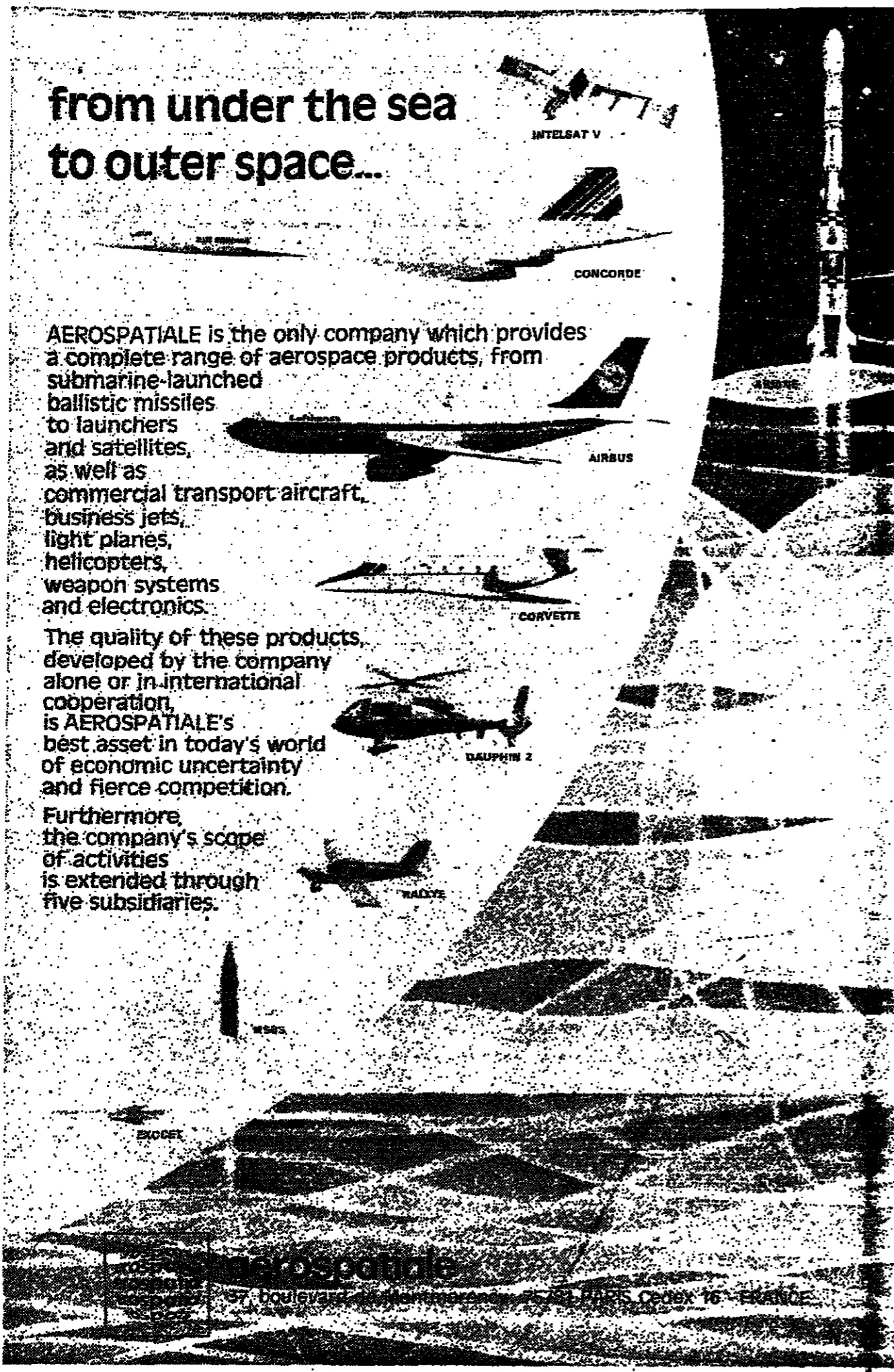
Soviet plan for expansion

from under the sea
to outer space...

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THE SOVIET UNION needs a modern aerospace industry and extensive air transportation network in order to connect cities separated by enormous distances. Soviet internal flights, as anyone who has ever taken one can attest, are the last word in functional travel. Nonetheless, the Soviet aerospace industry aspires to international stature and largely achieves it. Soviet aviation is distinguished first of all by its sheer size. Aeroflot, the Soviet national airline, is the largest airline in the world. Last year it carried 100m. passengers, linking 3,600 cities, towns and villages within the Soviet Union. It also maintained regular service to 76 foreign countries (due to increase to 90 countries by 1980). Soviet Civil Aviation Minister Boris Bugayev said recently that with the addition of 50 lines to the Aeroflot flight network in 1976, the airline's routes now cover more than 560,000 miles.

The 1976-80 Five Year Plan calls for Aeroflot to carry a total of 550m. passengers during that period, an increase of 30 per cent. over the goal in the 1971-1975 Five Year Plan. Aeroflot will also transport over 13m. tons of cargo and mail. This comes in addition to other tasks which are to be performed by the all-purpose Soviet airline. Aeroflot aircraft, for example, are to spray chemical and mineral fertiliser over 500m. hectares of farmland and forests, and the Soviet air ambulance system is to be extended.

Ambitious

To meet increasing demands, Aeroflot has ambitious plans to supplement its existing aircraft with an impressive array of new additions which are set to be shown at the Paris Air Show. The new aircraft will not have a major impact on Soviet aviation during the present Five Year Plan, although two of them are to be introduced into passenger service before 1980, but they give an idea of Soviet aviation's future.

The most significant of new aircraft to be shown at Paris is the 350-passenger

IL-86 Airbus which is intended to eventually service the most intensively travelled Soviet air routes. The twin-deck airliner, which will facilitate ties for music and films as well as a bar, will reach speeds of up to 820 miles an hour, has a range of 3,100 miles and is scheduled to be put into operation during the present Five Year Plan. The Airbus was successfully test flown in December and will be shown for the first time outside the Soviet Union at the Paris Air Show. The need for an aircraft like the IL-86 is acute. Internal flights in the Soviet Union traditionally take off without an empty seat and it is frequently necessary to wait in airports for three or four days in order to get a flight. Every fifth air passenger in the Soviet Union can expect to depart late, according to a Soviet air traffic official, and during a single two-month period at Domodedovo Airport—the biggest and newest airport serving Moscow—245,000 people were delayed for reasons other than poor weather. The advent of the IL-86 on routes such as Moscow-Leningrad and Moscow-Kiev should greatly increase capacity, reduce the frequency of flights and give Soviet air passengers a better chance of taking off on time.

Another future addition to the Aeroflot fleet which the Soviets expect to show at the Paris Air Show is the modernised TU-144 supersonic airliner. The aircraft is no longer scheduled to go into passenger service during the present Five Year Plan but recent changes in the TU-144 are taken as evidence of a continuing Soviet commitment to supersonic transport. The aircraft is to appear at the air show where it crashed in 1973, with new extendable wings at the middle of the fuselage. These wings are intended to stabilise the jet during takeoff and landing. It had been thought that progress on the TU-144 was being held up by problems with vibrations at high speeds and fuel consumption.

The IL-86, the modernised TU-144 and the Yak-42 are part of Soviet aviation's future. However, it is the production of two other aircraft—the IL-62 and TU-154—which is having the greatest impact on the changing face of Soviet aviation. Older aircraft like the TU-104, TU-134 and IL-18 are being gradually phased out. Although the Yak-42 and IL-86 will be introduced in the present plan period, they are not immediately expected to have a major effect on air transport. By 1980, however, about half the total number of Soviet air passengers will be transported in IL-62's or TU-154's.

The IL-62 was introduced in 1974. It is used on flights over three hours, carries 200 passengers, reaches speeds of up to 540 miles per hour and has a range of 6,600 miles. The TU-154 was introduced in 1971 and is used for somewhat shorter flights, it carries 164 passengers, has a range of 1,500 miles and reaches speeds of 600 miles an hour. Both aircraft are also used as major carriers in the Communist countries of Eastern Europe.

Western aviation experts believe that if the Soviets can successfully develop the TU-144, to which they still appear to be committed, the TU-144, IL-86, YAK-42, TU-154, and IL-62 will form the backbone of Soviet civil aviation during the next ten years. A non-passenger aircraft, the IL-76, which can carry up to 40 tons of freight and has been successfully tested and the severe conditions of the Siberia region is expected to play an important future role.

In addition to producing aircraft for the internal market and the East Bloc, the Soviet aviation industry is also offering several aircraft for export. The Soviet foreign trading organisation, Aviaexport, last year showed the Yak-42, the IL-76 and the Antonov-50 to a group of foreign businessmen, diplomats and journalists. Western military attaches consider both the IL-76, which can be used as a military transport, and the AN-30, a twin-engine turbo-prop photo-reconnaissance aircraft to be primarily military aircraft, and were somewhat surprised that they would be offered for sale. The Soviets at the exhibition were reportedly most definite about the terms of sale for the Yak-42, however, and least so about the IL-76.

The development of Soviet aircraft is being matched by the reorganisation of ground services. The intensity of air traffic has made it necessary to set up an automatic traffic control centre for the Moscow air zone. Plans call for the enlargement of the Aeroflot main computing centre, the heart of the automatic control system.

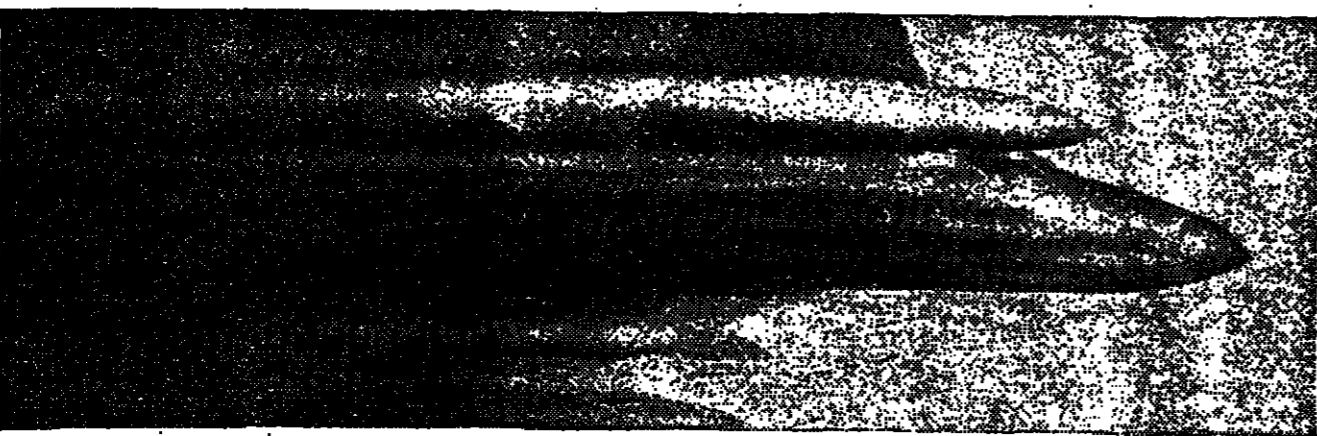
In addition, with the 1980 Olympics coming up, the Soviet's have signed a \$62m. contract with the West German company Ruter Bau, a subsidiary of Salzgitter, to construct a new terminal at Sheremetevo Airport capable of handling 2,100 passengers an hour or 6m. a year.

David Satter
Moscow Correspondent

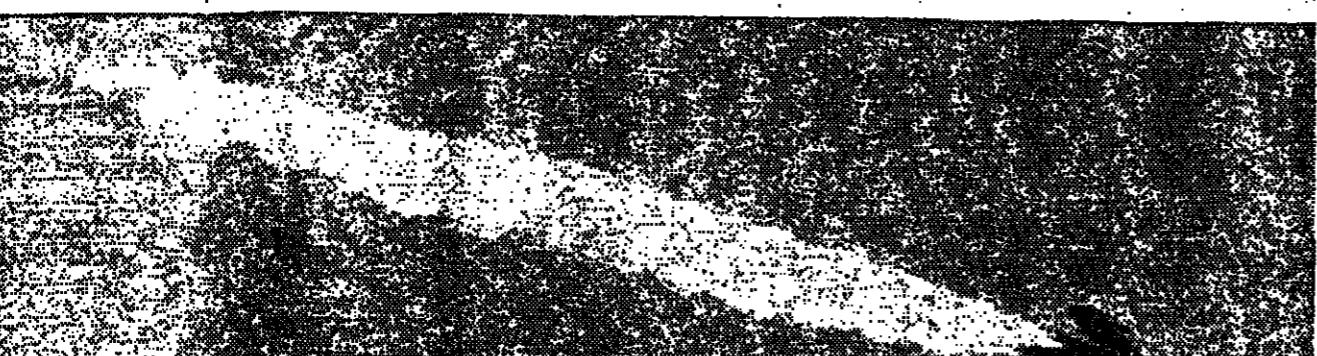
If you accept the fact that the ground soldier must have effective close air support...



you are not going to do it with a fast mover...



nor with aircraft highly vulnerable to AAA fire.



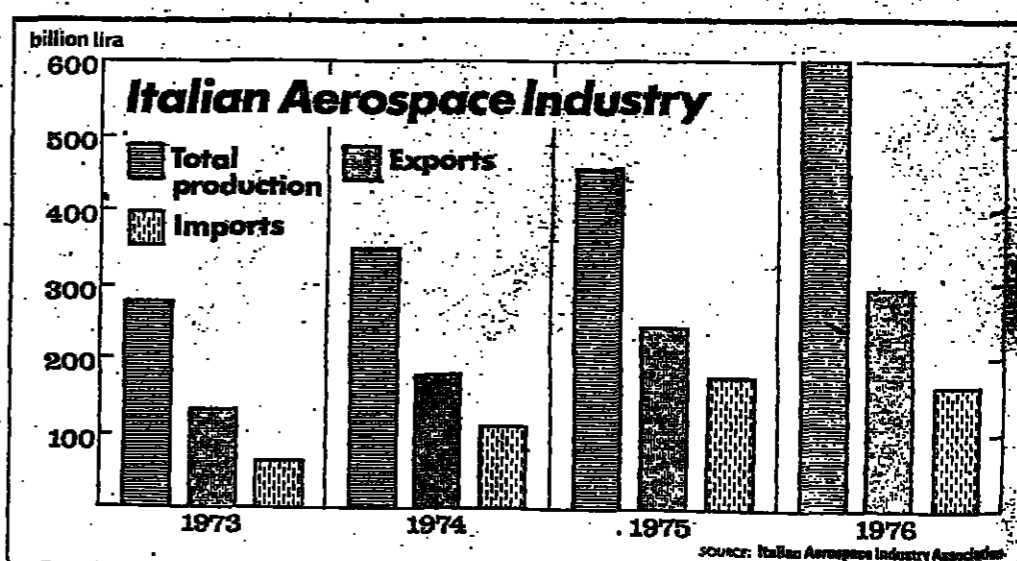
That is why the A-10 is now in the USAF inventory. It is the only aircraft in the world developed specifically for the close air support role.

Modernisation should help Italy

ITALY'S AEROSPACE industry suffers quite simply from a shortage of cash. The industry itself can afford little by way of applied research and its largest domestic customer on the aircraft side is the state. But the percentage of GNP going to defence has actually declined in recent years (it is now some 2.5 per cent.), and much of this money goes in wages with little left over for new equipment. However, now that the air force modernisation programme has finally managed to get through Parliament, the immediate sales prospects for the aircraft industry are at last somewhat brighter.

Yet the country's aerospace sector still manages to survive, and indeed to prosper. Turnover last year rose by 30 per cent. to L.600bn. (£400m.)—admittedly mostly due to price increases—and half of total sales were in exports, putting Italy third in Europe after Britain and France in the proportion of exports to total output. The industry overall employs 32,000 in its state and private sector components, with well over half the manpower being employed in airframe manufacture and associated activities. It was, said Sig. Rinaldo Piaggio, Chairman of the Aerospace Industries Association, who presented these figures earlier this month, a satisfactory performance in 1976, given the absence of what he called a clear air sector policy by the Government.

Parliamentary approval—with all-party support, including that of the Communists—of the L1.266bn. (£850m.) modernisation programme for the air force will allow Italy to go ahead with a firm order for the Tornado, the multi-role combat aircraft project under Nato sponsorship which is being developed jointly by Britain, West Germany and Italy. The Tornado's highly complex variable geometry wings are the Italians' contribution to the project which, for Italy's aerospace industry, will mean an esti-



imated 117m. work hours over twelve years for more than 6,000 people spread over roughly 100 companies. In a very real sense, it is now the sheet anchor of the industry in terms of production on the military side. Italy is pledged to buy 100 of the 809 aircraft to be manufactured, getting some 15 per cent. of the work in exchange for an 11 per cent. contribution to the project's research and development cost.

Involvement

For Aeritalia, production work on the Tornado comes just in time. Formed six years ago through the link-up of Fiat's airframe sector with IRI, Finmeccanica's interests in the same field, Aeritalia is the core of the state's involvement in the aerospace sector. Indeed, it is now wholly a state undertaking, Fiat having since withdrawn, and while the less-making Aeritalia is undoubtedly relieved that production of the Tornado MRCA is to go ahead, its greatest anxiety is that there is no substantial new project confidently in the offing. Aeritalia's greatest hope is that its partnership deal with Boeing on the 7X7 medium-range civilian project will get off the ground. Boeing, which is thought to be looking for additional partners for this projected new family of civilian aircraft with the emphasis on fuel economy, has, according to Italian sources, not so much gone cold on the project, but rather sees no great need to hurry. The American company is still getting substantial orders for the existing Boeing range of aircraft, and the 7X7 project goes further into the future. However, Aeritalia and the Italian aerospace industry as a whole believe that there is no real danger to the Boeing project, but simply a matter of timing. There is already a strong Aeritalia design and engineering team at work in Boeing's Seattle headquarters, and the Italian company clearly hopes that the 7X7 will ultimately give it access to advanced technology in civilian aircraft design and production and thus establish it as a potential partner in future aircraft building consortia.

But Aeritalia is only part of the Italian aerospace story. In the private sector, Aermecc, Piaggio and Piaggio are both active, the former with the new MB-339 replacement for its successful MB-326 trainer-fighter when the Italian air force has been allocated funds for trainers as part of the modernisation program. Piaggio has updated its standard F-166 light transport craft, replacing piston out and turbo-prop. In the air helicopters, Agusta continues to win very substantial orders both for machines under licence and for its design, the Agusta 109, number of Italian companies are also active in avionics in the missiles field.

Yet the absence of a cohesive Government program on aerospace, a fragment industry divided between state and the private sector and a small military procurement programme, even allowing the air force (and navy) modernisation plans, combine to little solid basis for expansion. On the engine side, the little real activity except a light end of the market under licensing arrangements in which can sometimes put the private sector, Aermecc, Piaggio and Piaggio are both active, the former with the new MB-339 replacement for its successful MB-326 trainer-fighter when the Italian air force has been allocated funds for trainers as part of the modernisation program. Piaggio has updated its standard F-166 light transport craft, replacing piston out and turbo-prop. In the air helicopters, Agusta continues to win very substantial orders both for machines under licence and for its design, the Agusta 109, number of Italian companies are also active in avionics in the missiles field.

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AEROSPACE IX

Optimism returns in the U.S.

THE AMERICAN aerospace industry, after the leanest and most difficult decade in its recent history, is more optimistic this year than anyone might reasonably have expected two or three years ago. The backlog for all orders alone at the end of last year stood at \$32.9bn. and that should be added another \$2.5bn. of military orders, to give the most conservative of estimates.

Although the industry is still much less profitable than other sectors of manufacturing industry its net profit after taxes a percentage of sales climbed last year to 3.5 per cent, compared with only 2 per cent the year before and a mere 1.8 per cent in 1975.

Meanwhile, the recession, which has badly affected civil aviation, both because of the rise in fuel costs and the decline in the rate of increase of passenger traffic, now shows unmistakable signs of giving way to a new surge of business for airlines. Passenger figures are rising and airlines are making the most of their opportunities with tighter scheduling and fewer costly uncompetitive services on marginal routes. This improvement in the fortunes of the airlines is of great significance to the U.S. aerospace industry which is well aware that sooner or later the U.S. civil fleet will have to be replaced.

Dr. George James, chief economist of the Air Transport Association, estimated last year that in the next 12 years American airlines alone are going to have to spend about \$20bn. at current prices on replacing. He noted that, assuming an 18 year life for the average commercial jet, the airlines ought now to be replacing between 120 and 125 aircraft annually, but as yet there is no sign of this kind of growth. However, Eastern Airlines is now toyng with the Boeing 737s and more new jets are confidently expected. Last year there were some 326 new jet transport aircraft ordered, according to the latest news which are soon to be ordered. One-hundred and thirty-three of these were for

foreign airlines which, of course, also have replacement needs which will, it seems safe to say, continue to be largely met in the United States.

Last year, the U.S. aerospace industry exported some \$7.9bn. worth of airliners, fighters, missiles and other equipment. Nearly \$6bn. of this was made up of civil aviation exports with most of the rest accounted for by military sales which, for the most part are made through the Department of Defence's foreign military sales organisation.

Overseas military sales rose sharply in the first half of the decade but have now somewhat levelled off albeit at a much higher level than before. Over all total industry sales to the Defence Department last year totalled \$13.4bn., which was only a small increase in value terms on the previous two years and in real terms represented very little progress.

President Carter's new arms sales policy, which was announced earlier this month, does not appear greatly to concern the industry at the moment, not least because it appears to have so many loopholes that it does not look as if very many of its traditional markets will be affected. However, this could change and the industry will be watching events very closely.

Anxious

The industry is, of course, also very anxious to see the Government press ahead with the building of the B-1 bomber which, if approved, would be built by Rockwell International in California. Its future remains uncertain and is intimately linked with the success or failure of the Strategic Arms Limitation Talks. If the aircraft does get the green light the latest estimates suggest that it will cost about \$100m. each, which would make it the most expensive aircraft ever built by a comfortable margin.

The last two years has seen a contraction in the U.S. industry as it has elsewhere and the companies that have emerged are now much leaner and financially much more healthy than they were. Even Lockheed, which has had considerable amounts of very unfavour-

able publicity, now has only \$65m. of its \$250m. standby loan outstanding.

Along with the improvement in profitability has come an improvement in productivity and a sharp reduction in the number of people employed—from 1.5m. in 1968 to 899,000 at the end of last year. But despite the enormous economy of scale and other advantages enjoyed by the U.S. aerospace companies they, like their counterparts in Europe and Japan, are still greatly interested in co-operation with other companies in other countries. The Lockheed alliance with Rolls-Royce has proved very successful technically with the new RB-211 engine enjoying a very good safety and maintenance record.

General Electric and SNECMA, the French company, are also working together on a new engine and the Pratt and Whitney division of United Technologies Corporation has also been toyng with a variety of co-operative possibilities. The engine manufacturers in particular are under great pressure from the airlines to produce a new range of engines which are both quieter and more economical on fuel. Latest estimates suggest that the standard jet fuel may cost as much as 99 cents a gallon in ten years time compared to the 33 cents a gallon it costs now.

In terms of triumphs and disasters this last year has seen two particular events. The first was the decision of four NATO countries to buy the F-16 which was a major shot in the arm for the U.S. industry and is one of the largest military contracts ever won. The disaster was the tragic collision on the runway of two 747s in Tenerife which had nothing to do with the manufacturers of the aircraft but nevertheless caused great sadness in the industry. One practical result of it may be to increase public pressure in the years ahead for so-called crash-proof fuel tanks. Such tanks are feasible but they are very heavy and would reduce fuel consumption fairly significantly. Nevertheless it would not be surprising if the new administration takes a very close look at the potential of such tanks.

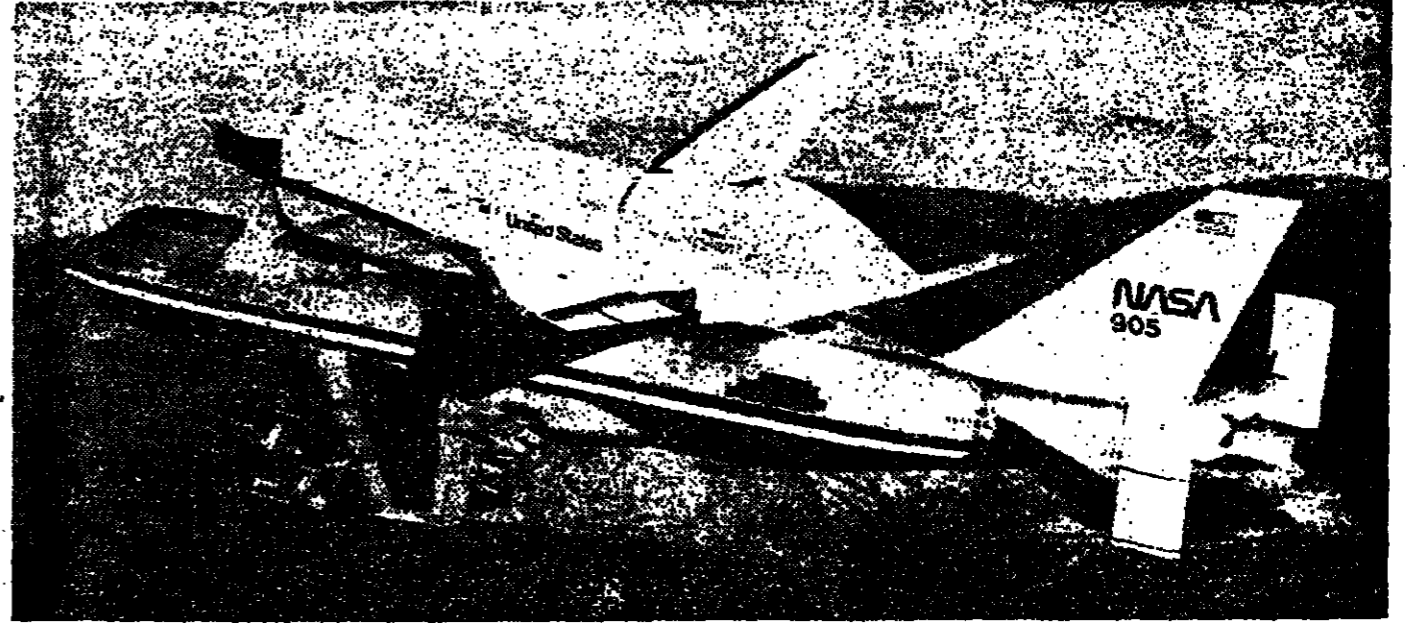
But it is to the civil airlines that the industry will be looking in the next few years. Boeing is already at work on its new 7X7 aircraft which is expected to have the range to cross the United States and much of Europe but probably will not have transatlantic capabilities, and it also has the smaller 7N7 design. There is no doubt that airlines need new aircraft, but there are grave doubts as to whether they can afford to pay for them. Even if the improvement continues it is difficult to see how airlines can generate enough of the money needed to fund major new purchases and this is a problem with which the Administration has yet really to concern itself. There is no shortage of people in the U.S. industry, who draw the parallel with the railroad industry which was unable to re-equip when it should have done and has since paid a heavy financial penalty.

Concern

In this context many of the airlines are worried that the Carter Administration's moves to de-regulate the airlines may exacerbate their problems. It is too early, however, to say what effect this policy, which has yet fully to be worked out, may have. Whatever happens the military part of the market will continue to be very important and it is here, despite stringent Pentagon bidding procedures, that there is a good deal of money to be made by efficient companies on long, well-organised production runs. Whatever the outcome of the SALT talks there is not going to be a fall in defence spending in the next few years and that can only be a good omen for the aerospace industry.

In any event as one industry expert put it: "business is good and better than we dared to hope." And the signs are that for the next two years at least the U.S. aerospace industry will find itself with much less to worry about than a few years ago.

David Bell



Above: The Space Shuttle Orbiter 101 riding on NASA's 747 carrier aircraft in the first series of captive approach and landing tests at NASA's Dryden Flight Research Centre, California. Below: The U.S. Air Force B-1 long-range bomber is now under development, pending a final decision by President Carter on whether or not to order it into full-scale production as the main U.S. strategic weapons delivery system of the future.



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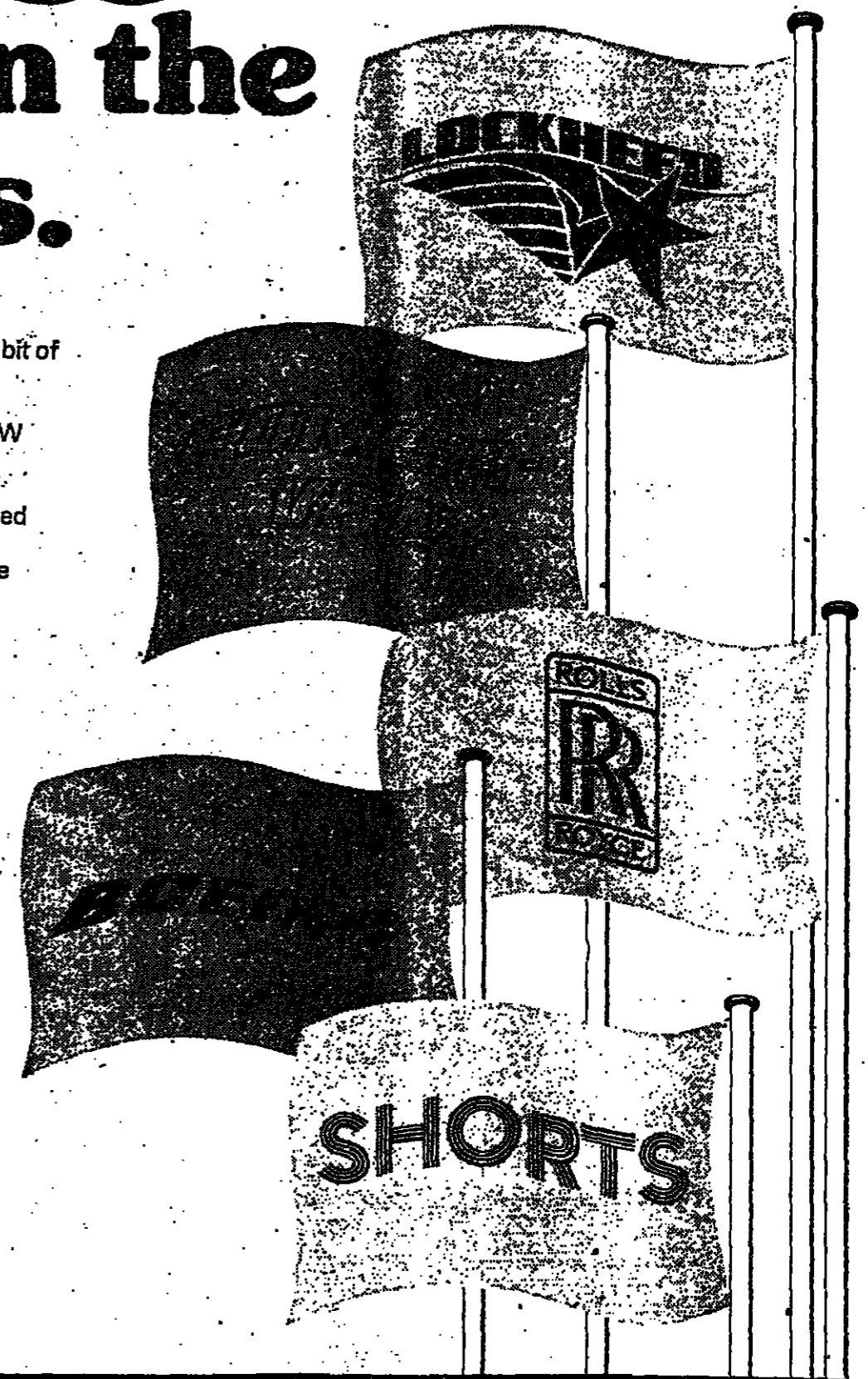
Then there's jet-engine podding. We've already podded over 500 RB.211 engines for Rolls-Royce and are currently working on the new Dash 524 version for the Boeing 747 and the Lockheed TriStar.

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Italy

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on the sale of Aeritalia's greater autonomy and to join successful G.222 transporter programmes not just in aircraft because of the aircraft's frames, but also directly in engine engines. It showed, engine development at the said, once again the need for initial research and development Italian industry to secure ment stage.

But the industry itself acknowledges that a major requirement is some long-overdue rationalisation, at least initially in the public sector, and there are some signs that the Government is already thinking along these lines. But industrial re-organisation and rationalisation is a complex and politically-sensitive process in Italy, and a state aerospace holding company with a co-ordinated programme in both the military and civilian spheres may take some time yet to emerge.

The private sector, meanwhile, presses on with the ingenuity and flexibility (and generally, the profitability) for which the Italian secondary industrial sector is rightly famous. It can certainly use urgently some state financing assistance for research, but then, too, some companies selling against tough competition out in the international market place would argue that an even greater priority just now is a comprehensive programme of export credits. Given its limitations, the relatively infant Italian aerospace industry is not performing too badly!

Dominic J. Coyle

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Germans stress the 'two-way street'

THE WEST German aerospace industry is a smaller and less enterprising than its counterparts in either Great Britain or France, with a little over 51,000 employees at the end of 1976, and a turnover of about DM4bn. Other figures fell during last year, in line with the difficulties that have beset the industry in all countries. Five months ago, the emphasis is thus on maintaining and consolidating what exists, although the German Government is at the same time intensely interested in getting the other major European aerospace nations under the table to discuss how best to plan long-term co-operation that will guarantee a worthwhile future in terms of products, markets and jobs.

Projects in which the West German industry is currently engaged certainly need a healthy measure of confidence, for in Hamburg and Bremen and in the smaller manufacturing centres around them in North Germany, there are already fears for jobs in the long term, and considerable short-term working now. There are also Bonn from the governments of these two autonomous Hanseatic city-states for the long-term, yet never realised, restructuring of the industry so that South Germany has some of the currently flagging civil side of the industry and gives to the north more of its own military work—which in 1975 (the last full year for which figures are available) was worth three times as much as the civil side. For the future, there is once

again speculation that the man aerospace industry is engaged, through Deutsche Airbus, Messerschmitt-Bölkow-Blohm, VFW-Fokker 35 per cent. and the German-Dutch VFW-Fokker, which in turn is responsible for some 36 per cent. in value of the total Airbus project. The Germans build most of the fuselage, the tail and parts of the wings.

West Germany is highly pleased with the Airbus as a working aircraft, and though senior Government officials responsible for the project's funding try not to be over-optimistic, there is enormous excitement on the German side at the six months' trial with four A300Bs which the leasing deal with Eastern Airlines will give the Airbus on the all-important U.S. market. The Germans feel that for once, Europe has a product which cannot be matched during the next five to six years

by anything that the U.S. aircraft industry can build, and they believe that if all goes well during the Eastern trial, the more efficient fuel use, quietness and relatively trouble-free ground handling of the Airbus will lead to big orders both from Eastern and from such American carriers as Delta which also have medium-range, high-density routes.

Strained Unlike either the British or French, the West Germans have no previous history of strained relations with Washington in the civil aviation sphere. They are not a party to the row over Concorde and they are hopeful that such irritants as the unequal U.S. tariff on imported aircraft can be resolved, perhaps in the

Geneva round of multilateral trade negotiations. Despite several recent tensions in areas unrelated to civil aviation between West Germany and the U.S. (for example, nuclear technology sales and the joint tank project), German faith in the "two-way street" is genuine. But there should also be no doubt of the Government's commitment to the Airbus, and to the need for it to be given a fair chance by the U.S. Government, airlines, aircraft industry and travelling public alike.

As much as they believe in the Airbus as it is now, the Germans are also anxious to waste no time in pushing ahead with the programme's next phase, the development of further members of the Airbus "family," and notably of the smaller, 200-seater B-10 version, for whose project definition phase the German and French Governments gave the go-ahead earlier this spring.

Swedish aerospace industry is still being kept on tenterhooks. The new non-aligned Government has production series and SAAB-sponsored the decision on development of a new light trainer aircraft, originally scheduled to have been completed by the end of the year. An order SAAB-Scania for the full development of this aircraft, designated the B3LA, is essential if the company—and Sweden—are to retain their aircraft and development capability.

The five-year defence programme tabled by the Government earlier this year did not include finance for the B3LA. It has been estimated that roughly half an extra Kr.1.5bn. (200m.) would have to be found above the existing defence budget. Since the postponement was made known, the Swedish Air Force Commander has said that no aircraft with similar qualities to that of the projected B3LA is being developed by any other manufacturer and that it is not therefore valid to talk of buying a cheaper alternative abroad.

The configuration of the B3LA has now become clearer. It is designed as a short and medium-range, ground attack and army support complement to the A-30, whose primary role will be long-range interdiction against attacking naval forces. It will be equipped with a FLIR (Forward Looking Infra-Red) navigation and strike system, which is being developed by the Swedes themselves with L. M. Ericsson, the telecommunications concern, taking a significant role. It has been estimated that the aircraft would go into the attack at a height of no more than 20 metres from the ground.

A twin-seater, the B3LA has nevertheless been designed primarily as a strike aircraft with the possibility of being used as a trainer. Its weight is about half that of the Viggen, it will be much cheaper to operate and can be flown by reserve pilots, who cannot fly the Viggen without supplementary training. The B3LA will also fit into Sweden's unique air base system, being able to take off from ordinary roads and to operate without much ground equipment. It will have its own built-in power unit, will taxi on grass or gravel strips and is easily camouflaged.

Costs In industrial terms, the Germans are very keen to see the British Aerospace Corporation continue the role of the former Hawker-Siddeley company in building the wings of the plane. Since these will need to be redesigned, the share of the total work will rise from 17 to about 30 per cent. of the new project—about \$200-300m. in development cost. But there is little chance

that this work could be awarded to the British unless Whitehall is willing to undertake the capital expense, for both German and French capacity is lying idle which could be used for the job, even though this might take time to tool up.

Space Yet in one extremely important sector, West Germany has been a prime beneficiary of exactly this type of co-operation. This is the Space Shuttle in which Europe is building the Spacelab as its share of the U.S. major post-Apollo manned space flight venture.

At the industrial level, the main contractor and in effect coordinator for Spacelab is ERNO Raumfahrttechnik, a subsidiary of VFW-Fokker. The company is bringing together the efforts of a dozen co-contractors in ten European countries at its Bremen works, and will assemble, test and deliver Spacelab to the Americans by the end of 1978. All the indications are that the European side of the project will be on time and within the budget—plus contingency allowance laid down in January, 1974.

Decision The delay in settling the fate of the Swedish aircraft industry must be attributed largely to the 1974 Parliamentary Defence Committee, which reported in January, but in the event shirked the decision on the B3LA. The Committee stated that it would need more detailed information, a standpoint revealing the political divisions on the issue. The Social Democrats, now in opposition, were against development of the B3LA, which the Liberals were sufficiently uncertain to prevent a non-Socialist majority opting for it. Within the present Cabinet the Moderates (Conservatives), and probably a majority of the divided Centre Party members, favour the B3LA while the Liberals would like to have the development cost funded out of the current defence spending.

Offers Having lost the "weapons deal of the century" to the General Dynamics F-16 and the Finnish trainer order to Hawker Siddeley's Hawk, SAAB-Scania is still trying hard to get its first export order for the Viggen. Offers have been made to Austria and Australia. The most immediately relevant is the Austrian order, for which SAAB-Scania is competing against the French Mirage F-1, the Northrop F-25 and the Israeli EGR and on which it hopes a decision will be taken early next year. Austria is one country where Sweden's neutrality can give SAAB-Scania an advantage. It has already sold 40 SAAB-105 trainers to the Austrians, and believes it can offer a fully competitive industrial off-set deal for the 24 interceptors the Austrians are now seeking.

On the civil aircraft side, SAAB-Scania has after extensive market research revamped its design for a light, multi-purpose transport aircraft for use in developing countries or under exceptionally rugged conditions. Named the Transporter, this aircraft would now have a seating capacity of 30 instead of 20, and would be powered by two turbo-prop engines instead of the four piston-engines originally favoured. No decision has yet been taken to go ahead with development of this aircraft. SAAB-Scania has now sold

100 of its tough, light, single-engined support aircraft, known as the Supporter in its military version and the Safari in its civil guise, the main customers being Pakistan and Denmark. It has made a "works package" offer to McDonnell Douglas of the U.S. for development of the DC-9 airliner, on which the Swedish Government has agreed to share the development risk. Swedish missile development is also in suspense as a result of the postponement of the decision over the domestic aircraft production with which it is linked. SAAB-Scania is currently producing its OSA air-to-surface and the OAE anti-ship missiles for the AJ-37 strike between SAAB and Bofors on the Viggen, while the new generation of the AJ-37 strike is in the full-scale development stage. This is an infra-red long-term aircraft and missile equip the JA-37 interceptor version of the Viggen.

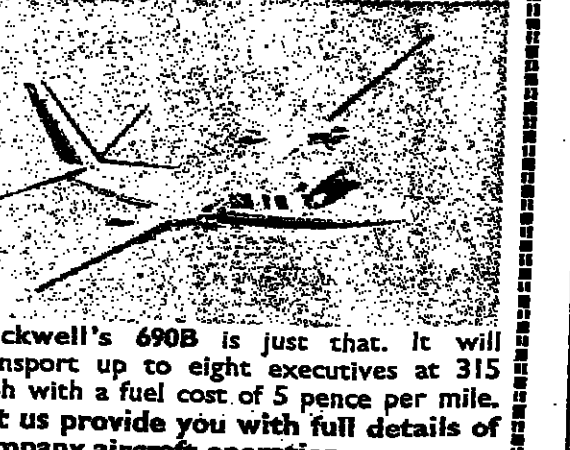
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AEROSPACE XII

Helicopters earn their keep

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ALTHOUGH SALES of helicopters throughout the world did not pick up so rapidly in 1976 as many manufacturers in the U.S. and West Europe had hoped — the general description of the market was that it was "flat" — there are nonetheless high hopes for 1977. The inflow of orders so far this year for many makers — again especially in the U.S. — has encouraged beliefs that the helicopter market has at last really recovered from the recession following the oil crisis of 1973, and that from now on the sales graph will be rising steadily.

Trends

Ten years ago, nearly 90 per cent of all the helicopters sold to civilian customers were models derived from original military specifications. At the present time, because of the emerging civilian interest, which is demanding models specifically designed to cater for those needs, this proportion has dropped to about 70 per cent, and Sikorsky believes that within the next decade it will go to below 50 per cent. Above all, Sikorsky says that it sees in the increased commercial helicopter development a clear indication that the helicopter industry has matured, and is profitable enough to justify today's outlays of funds especially for the development of new civil models.

As a result of these trends, the general view prevailing among the world's helicopter manufacturers is that the total market for the next decade should be adequate to provide a fairly substantial level of business for all participants, although there will undoubtedly be some severe competition in some sectors of the market. This latter factor, coupled with steadily rising costs, is likely to lead to an increase in the price of about 60 per cent, for about 11,700 aircraft, will be amount of international collaboration. This is especially the case in Western Europe, where the U.K. and France as far back as 1967 agreed on the tripartite helicopter package (Puma, Gazelle and Lynx). This was

followed by the formation of Heli-Europe Industries in 1973 by Westland of the U.K. and Aérospatiale of France to explore possible future collaboration, while in 1975 Westland, Aérospatiale, Agusta and Messerschmitt-Bölkow-Blohm of West Germany agreed to collaborate if feasible designs could be agreed. Last year, member-Governments of the EEC countries set up what was called the European Programme Group No. 2 to define common European operational requirements for military helicopters, and earlier this year a Helicopter Technical Working Group from Britain, France, Italy and West Germany was set up to produce detailed requirements of a new generation of military helicopters which could be divided between the manufacturers on an equitable basis.

Responding to this, the four companies (Westland, Aérospatiale, Agusta and MBB) have submitted a comprehensive study to the Working Group, proposing a detailed future programme of coordinated helicopter research, to be paid for from the central EEC research budget, embracing many aspects of helicopter technology, such as noise reduction, improved blade performance, operation under IFR (instrument flight rules) and so on.

So far, the work of the four companies and the Working Group itself has not resulted in a specific four-nation future civil or military helicopter programme, nor is there yet any guarantee that one will emerge for some time to come, for each of the four companies and countries has current work programmes of its own that will certainly keep it busy for the immediate future. There are also some differences of view between them as to how such major multi-national programmes ought to be run, and it is possible that these may prove to be difficult to overcome.

The U.S. manufacturers, however, are not ignorant of the fact that there is likely to be a big demand for civil and military helicopters in Western Europe in the decades ahead, and they are not likely to be slow in exploiting any differences of view that they detect, in favour of promoting bigger sales of their own programmes. It is likely to be in the long-term interest of the European helicopter manufacturers to reconcile their differences and establish design concepts and work programmes reasonably quickly, if they are not to find themselves being left behind in the helicopter stakes of the 1990s and beyond.

Apart from this, the current work programmes for the major European helicopter manufacturers remain strong.

In the U.K., Westland is thus concentrating its activities on military types — the Lynx multi-role helicopter and on the Sea King transport and anti-submarine helicopter, with its variants such as the Commando — while also maintaining its share of the work on the other major current programmes, the Puma transport aircraft and the Gazelle light helicopter, both parts of the original Anglo-French helicopter development and production package.

Cuts

Westland has suffered, however, from the effects of the U.K. Government's progressive cuts in defence spending, and there have been slow-downs in the procurement rate of both Lynx and Gazelle helicopters. The company says it is keeping a close watch on the possibilities of the civil market, but is unlikely to spread its resources into this area in the foreseeable future while adequate military business is attainable, for it believes that, notwithstanding the U.K. defence cuts, military business is better, with larger orders and bigger customer investments in spares and product



Sikorsky Aircraft's UH-60A UTTAS (utility tactical transport aircraft system) helicopter prototype demonstrates its load-carrying ability by lifting a U.S. Army "Gamma Goat" vehicle weighing more than 7,000 lbs.

support. On the civil side, the cost of Certification for Airworthiness has to be written off against perhaps small initial orders, and the supplier is expected to make a large investment in product support services and spares to meet an unforeseen but urgent customer demand. In its search for new military business, Westland is particularly looking at export markets, with the emphasis at present on selling the Lynx to the Middle East, where the company has already done well with both its Sea King search and rescue and anti-submarine warfare helicopter, and with its Commando troop transport variant.

In France, the helicopter division of Aérospatiale has done well in the first three months of the current year, booking new orders for over 140 of its small and medium helicopters — including the Gazelle and the new Ecureuil, while it has also achieved considerable continued commercial success with the civil version of the Puma transport aircraft, especially with North American customers who need it for oil exploration and support duties. Aérospatiale is also now marketing its Dauphin helicopter in

two versions, the SA-380C, a single engine aircraft, and the SA-365 Dauphin 2, a light twin engine aircraft, both primarily aimed at the corporate business aircraft market, especially in the U.S. Aérospatiale is also now marketing in the U.S. the AS-350C AStar, a wide-bodied, high-performance helicopter, designed to meet the demands of the growing civil market.

Attention

The other major European helicopter manufacturers include Messerschmitt-Bölkow-Blohm, which is doing well with its BO-105 light utility helicopter, and its derivative, the BO-106, with a planned seven-seat development, the BO-107. In Italy, Agusta has devoted much of its attention in recent years to the development of the A-109 high-speed, twin-engine helicopter, which in its basic version accommodates pilot and seven passengers, but which is also available in a wide variety of roles, for freight carrying, search and rescue, ambulance and military duties. In the U.S. there have been some significant major developments in recent months. Sikorsky Aircraft won the U.S. Army's long Utility Tactical Transport Aircraft System competition (UTTAS) with its UH-60A, designed as the Army's first squad-carrying utility helicopter, for which eventual orders could amount to \$3bn. Sikorsky also has been making rapid progress with its new S-76, with orders from 25 customers for more than 85 aircraft. The twin-turbine-engine S-76, designed from the start for civil duties, can carry up to 12 passengers plus a crew of two, over distances of 400 nautical miles at a speed of up to 176 mph. With additional fuel tanks, it can carry eight passengers for 600 nautical miles. It has been designed from the outset to meet the needs of the oil industry, especially for offshore rig support duties, and for general business aviation requirements into the 1990s and beyond. Sikorsky is also now flying a new helicopter research aircraft for the National Aeronautics and Space Administration, designed to develop new techniques in rotor systems. The company's big S-61N, used extensively in the offshore oil industry, continues its production at a rate of one aircraft a month.

Also in the U.S. Hughes Helicopters won the U.S. Army's other major competition, for an Advanced Attack Helicopter (AAH), with an initial order from the Army for what will eventually be a fleet of 538 of these aircraft (the Hughes YAH-64) worth over \$4bn. Hughes is concentrating its efforts on this aircraft, and does not at this time envisage adapting it for civil uses, although the company says it could be adapted readily to a light or medium twin-engine commercial machine. Nor is there yet any specific Hughes intention of producing the aircraft in Europe under licence. However, if the U.S. Government permitted sales of the YAH-64 to NATO, it is possible that some licence production arrangements could be made.

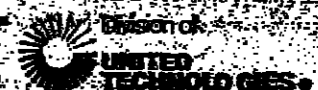
Also in the U.S. Bell Helicopters, which already dominates the world's light to medium helicopter market, has brought out its Model 223 eight-seat twin-engine helicopter, an entirely new design, intended for the growing business helicopter market, but also capable of utility duties in the offshore oil industry. M.D.



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Putting space to work

OVER RECENT years, a fundamental change has occurred in space research which has profoundly altered the character of man's exploration of the immediate environment beyond the atmosphere surrounding his planet. This can be summarised as a change in public mood towards space activities. The euphoria engendered by the early years of manned Earth-orbit and moon landing moon missions and other "space spectacular" has given way to a marked desire to see the massive technological achievements generated by the early space flights turned to more scientifically, economically, socially and even politically rewarding spheres. While some proportion of the budgets provided by governments for space research (especially in the U.S.) can still be spent on the acquisition of new knowledge about the solar system of which Earth is part, and to a more limited extent about the universe itself, the emphasis is now more upon not only getting value for money but also in making the still comparatively new science of space technology work for its living.

As a result, the emphasis has shifted on to unmanned Earth-orbiting satellites of a wide variety of uses and in increasing numbers, with in turn considerable emphasis being placed upon the development

of communications, but with other practical uses also such as for the fore-such as the monitoring of the earth's mineral and other resources, meteorological research and navigation. It must also be admitted that the military uses of space have not been lost on the major Western nations, and an increasing number of satellites are being launched for military communications, "spy in the sky" and other duties. While at this time, there is no definitive evidence that satellites are already being employed to carry destructive weapons, it seems logical that sooner or later they will do so—and the prospects of such a development that are already appearing in turn the technology of counter-measures, such as the development of laser beams to destroy satellites as well as to attack incoming enemy ballistic missiles.

Efforts

At the same time, there have been considerable efforts on the part of the various governments responsible for funding space developments to try to bring some kind of order into the chaos that threatened to ensue with everybody pursuing his own particular path through the expensive labyrinths of space technology.

One of the most significant developments in this respect has been the formation of the European Space Agency itself, bringing together the collective space resources of many European countries (Belgium, Denmark, France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland and the U.K., with countries such as Austria, Canada, Ireland and Norway having observer status). The ESA in the two years since its formal establishment in 1975 has moved quickly into a substantial programme of space developments, again mainly concentrated, at the hardware end, on the provision of satellites for useful purposes. Probably the most significant among these is the Orbital Test Satellite, or OTS, currently under development for the ESA by a consortium of European companies headed by Hawker Siddeley Dynamics of the U.K., and called MESH. While primarily intended as a precursor of a European Communications Satellite system, the OTS is also significant in that in design and construction it forms the prototype of many other possible types of "user" satellites for the future. The basic satellite module becomes, in effect, a vehicle or "bus" aboard which a wide variety of payloads can be mounted, according to a specific mission requirements.

One adaptation of the OTS already under way, for example, is in the Marots maritime satellite, also under development by the MESH consortium for the ESA for launch next year, intended to provide ship-to-shore communications on a global basis (in the U.S., the Comsat General Corporation's rival Marist maritime communications satellite is already in service). Recently put into orbit for the ESA is the Geos satellite, a scientific research vehicle developed by the STAB International consortium, headed by the British Aircraft Corporation, and designed to yield greater knowledge of the magnetosphere. This is the first ESA satellite to be launched into geostationary orbit (that is, its orbit is so closely matched to the earth's own rotational speed that the satellite remains virtually in one spot over the earth, thus greatly enhancing the transmission of instructions to, and the receipt of data from, the OTS).

Also under development for the ESA are the Meteosat, due for launch in 1977 for weather forecasting and other meteorological duties; and the Exosat, an X-ray astronomy satellite being planned by the Aerosat, for astronomical satellite communications. The latter is a collaborative venture between the Europeans, the U.S. and Canadian authorities, but some problems have arisen in the U.S. regarding the financing of the programme. At a recent meeting of the participants, and Aerosat Council, set up by the parties to run the programme, stressed its desire to see the venture continue, and urged the U.S. to try to settle these funding problems by the end of September, so that clear decisions on the Aerosat's future could be taken.

Probably the two most significant long-term ESA developments now under way in Europe, however, are the Ariane satellite-launching vehicle, and the Spacelab manned re-usable space laboratory.

Rocket

The Ariane rocket is being developed to provide Western Europe with an alternative method of launching satellites and other small payloads into near-earth orbit in the 1980s and beyond, in the event of the U.S. for any reason declining to permit foreign countries to share the payload space available on its own Space Shuttle manned re-usable Space Transport System or because pressures of demand may make it too difficult to get launching space on conventional U.S. rockets.

The Spacelab is a manned space laboratory in which, for the first time, scientists, engineers and technicians rather than astronauts—and women as well as men—will be able to travel to and work in earth orbit, in "shirt-sleeve comfort" without needing special clothing or intensive training. The Spacelab is being developed by the ESA in conjunction with NASA of the U.S., and is designed to be carried into near-Earth orbit by the U.S. manned Space Shuttle.

The latter is an advanced space transport system, now in production in the U.S., for the National Aeronautics and Space Administration, for use in the early 1980s, whereby a wide variety of payloads will be carried into orbit in the Shuttle Orbiter vehicle's cargo bay. The Shuttle, combining both the Orbiter vehicle and the Booster Rockets, will be launched from Earth off a pad in the customary manner for launching all space vehicles. Before the manned Orbiter itself goes into orbit round the earth, the Booster will fall away into the ocean and will be recovered for refurbishing for later use. The Orbiter will proceed with its mission, and will then return to earth, several days or weeks later, landing at a specially prepared airfield at Cape Canaveral, Florida, like a big aeroplane, where it will also be itself refurbished for further use. It is intended that each Space Shuttle Orbiter and Booster combination will be capable of perhaps up to as many as 100 missions, and it is hoped that the Shuttle will become the major system of living

The business aircraft

MAKING A decision for or against purchase of a company aeroplane is not easy and is likely to be complicated by a variety of non-operational considerations, not the least of which is the personal inclination of the chief executive of the company involved. Choosing an aircraft is still regarded in some quarters as being in the same league as buying a racehorse or sponsoring a big sporting event; largely a matter of prestige, to be governed by quite a normal business considerations. To the aircraft manufacturer, this attitude is anathema, not because he has some moral sense to grind about the vanity of prestige, but because it means more than brings into the world another dissatisfied customer, when the expense of the private aircraft has quickly outweighed the novelty of the first few prestigious flights.

Companies are also prone to make bad decisions because purchase of an aeroplane may well be a new experience and one which will not be repeated for a period of years. For these reasons primarily, it is good advice for prospective business aircraft purchasers to get the services of an aircraft

broker's party. It is limited by the fact that the business of selling aircraft is not at least help a potential customer to work out thorough and accurate costings and test the utilisation of the aircraft. On this last point, it will be stressed that the aircraft should not simply be set aside according to management pecking order, but strictly on the basis of useful economic need. The advantages of business flying are obvious. It is quick, it is flexible. For the flier it is perhaps the most free long-distance mode. The main disadvantage is the purchase price, which is very high, but the most popular business aircraft in Britain, the per Navajo Chief, comes at £185,000. Depreciated 70 per cent over seven years and with an extra annual cost of £10,000 as insurance, hangarage,

maintenance and pilot's salary, this gives an estimated annual outlay of just over £34,000. Hourly flying charges might be around £50. One side advantage, though, which the manufacturers enjoy pointing out, is U.K. tax law, which makes the purchase of an aircraft offsettable within the first year of ownership.

Constraints

To some extent, the costs can be mitigated by not going for an overambitious aircraft as a first purchase. Other problems, such as availability of airports and the constraints imposed by governments, vary according to the country of operation. In general terms, Europe is much more difficult in this respect than the U.S. and American manufacturers, who supply most of the world market in business aircraft, have found the last year particularly hard going in Europe.

In West Germany, recent noise laws have necessitated modifications in U.S. models, and in Italy, it is sometimes hard to obtain aviation fuel. In most European countries, there are problems in gaining customs clearance at anything other than a major airport.

turnover of £30bn, of which £5bn is exports. The argument at the moment is hung over the business aircraft owners' refusal to use Stansted airport, Essex, as a business jet since 1973. London alternative on the grounds of its inaccessibility. Some solution will clearly become urgent, though, as general aviation (mainly business) aircraft movements through the seven airports operated by the British Airports Authority has multiplied fivefold in the last ten years and, in spite of a fall caused by higher fuel costs, expected to resume its upward surge this year.

Partly because of such restrictions, but mainly because of its geographical compactness, Britain has been a sluggish market for business aircraft and now has only about 600 registered craft, out of a total of around 3,000 in Western Europe. This might account for 2m. out of an estimated 40m. flying hours by general aviation world-wide last year.

The U.S. manufacturers are looking for an increase of perhaps 10 per cent to 1,100 units in the number of general aviation craft exported to Europe this year, although this must be regarded purely as a target in view of the industry's

failure to meet projected expansion in 1976. The lingering effects of the fuel crisis can be judged by the fact that Britain has not imported a single business jet since 1973. In the U.S., however, business flying sales are expected to grow strongly again this year, following a 19 per cent increase in the value of sales to \$1,200bn in 1976, of which one third was for export. Optimists believe the U.S. will export 3,600 aircraft in 1977.

Dwarfed by comparison, European business aircraft manufacturers still hope to cash in on the strength of the North American market. Dassault-Breguet is doing well in transatlantic sales and Hawker Siddeley had its best year since 1973 last year, selling 20 of its HS126 business jets, of which 11 went to North America.

Another growth area is that of the business taxi, which for the medium sized company can provide an attractive and more realistic alternative to the heavy commitments of a typical charter for an occasional charter in Britain might be around £400 an hour, but this is decreasing considerably if longer commitments are entered into.

Ian Hargreaves

through the broker's party. It is limited by the fact that the business of selling aircraft is not at least help a potential customer to work out thorough and accurate costings and test the utilisation of the aircraft. On this last point, it will be stressed that the aircraft should not simply be set aside according to management pecking order, but strictly on the basis of useful economic need. The advantages of business flying are obvious. It is quick, it is flexible. For the flier it is perhaps the most free long-distance mode. The main disadvantage is the purchase price, which is very high, but the most popular business aircraft in Britain, the per Navajo Chief, comes at £185,000. Depreciated 70 per cent over seven years and with an extra annual cost of £10,000 as insurance, hangarage,

The owners of Britain's business aircraft tend to feel that they have the hardest lot of all, especially when it comes to airports. They have been given notice to quit Heathrow by 1979 because of runway saturation, and there are fears that Gatwick, at the moment the most important and popular airport for business craft, will be declared out of bounds too as Government policies lead to a build up in scheduled and charter passenger traffic from 6m. to 16m. passengers a year.

The strength of the authorities' case in deciding between landing rights for a jumbo-jet full of holidaymakers and a couple of private aircraft carrying four executives is plain enough, but bodies like the Business Aircraft Users' Association argue that the importance of business flying is out of all proportion to its number of passengers in terms of Britain's industrial health. As it points out, its own 57 members represent an annual

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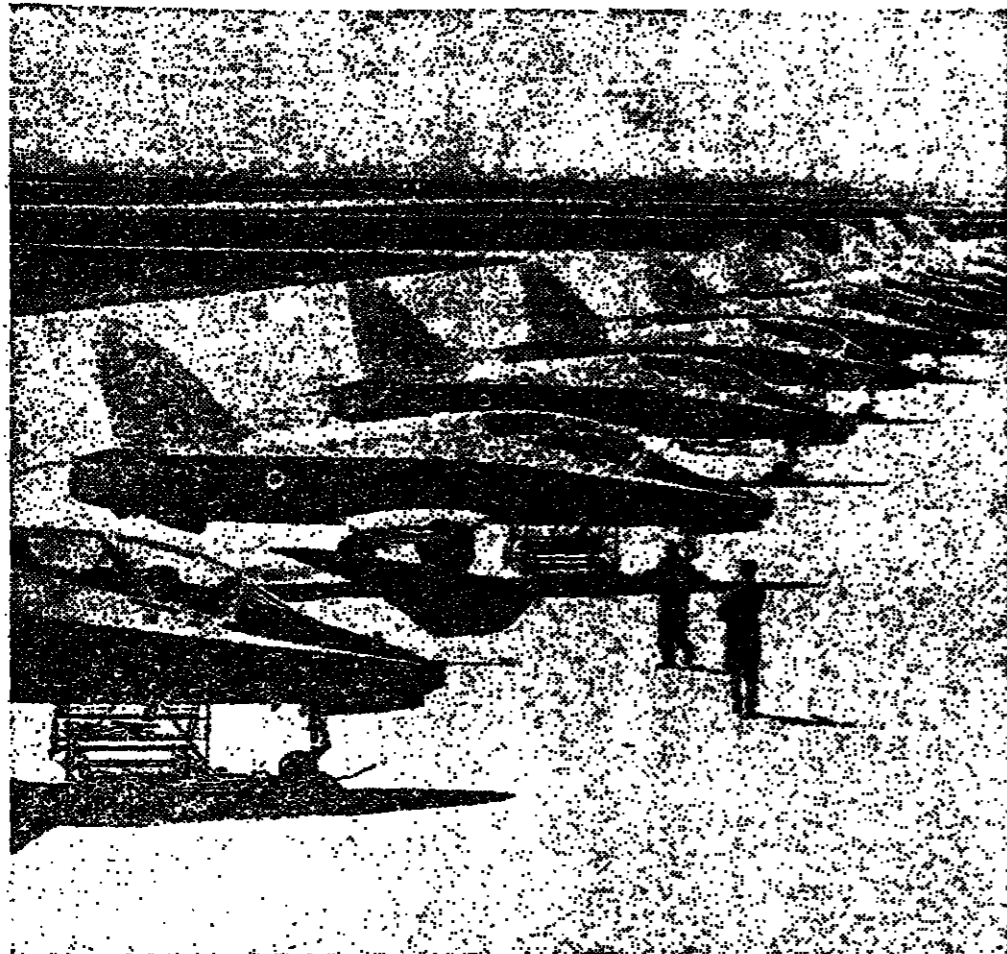
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AEROSPACE XIV

Tight rein for RAF



The Hawker Siddeley Aviation Hawk is now entering squadron service with the RAF. A total of 176 of these aircraft have been ordered by the Ministry of Defence for the RAF, which will use them as "all through" trainers from the basic flying stage through to advanced flying and weapons training. The aircraft is also being offered by BSA to air forces world-wide as a close air-support and light combat fighter. A major order for Finland is being negotiated. The Hawk is powered by a single Rolls-Royce/Turbomeca Adour turbo-fan engine. The picture shows the aircraft on display at RAF Valley, in Anglesey.

THE FREQUENT cuts in defence spending of the past few years have been particularly severe so far as the RAF is concerned, resulting in some significant reductions in the rate of re-equipment with major new weapons systems, such as the Tornado multi-role combat aircraft, designed to enable the service to fulfil its assigned roles in support of Nato.

This is causing the Air Staff considerable concern in the light of the rapid build up of Soviet airpower, especially in the Central Region of Nato in Europe. The recent Defence White Paper made it clear that since 1970, the Soviet air forces have been engaged in a comprehensive programme of re-equipment, aimed at achieving a major advance in the ability of their tactical air forces to engage in conventional offensive air operations, instead of the earlier concept of air defence cover, and in direct support of the Soviet Army. The increase in the Soviet Air Force's combat strength since 1968 is equivalent to the addition of seven air regiments, with the number of Soviet tactical aircraft available in the Central Region rising from 1,655 to at least 1,975, or about 20 per cent, while advanced types of aircraft for "air superiority" roles, such as the Mig-25 Foxbat in various versions, have been seen increasingly in this area.

It is estimated that the Soviet Union is now building not less than 1,900 military aircraft a year, of which over half are high-performance combat aircraft—in terms of numbers enough to replace the whole front-line force of the Nato countries every six months or so. Earlier Defence White Papers indicated that the Nato air forces were already outnumbered in terms of tactical aircraft by 2.3 to 1, and the continued cuts in defence spending in the U.K. have not helped to redress that situation.

Nevertheless, the RAF believes that despite the limited resources at its disposal, it already has an efficient force, comprising Hawks for basic training; Harrier vertical take-off aircraft for battlefield support; Jaguar strike aircraft for ground attack and battlefield interdiction; Phantoms for ground attack, reconnaissance and air

redeployment, to introduce strategic reinforcement, and to agree on the release of theatre nuclear weapons. Thus, much of the emphasis in the RAF at present is on maintaining a high degree of effective response in terms of tactical airpower.

It is for this reason that by far the most important aircraft now under development for the RAF is the Anglo-West German Italian Tornado multi-role combat aircraft. Of the 309 ordered for the three air forces, the RAF will have 385, in two versions, the Basic version which is intended as an interdiction-strike (IDS) aircraft, and the Air Defence Variant (ADV). The Tornado as a whole features many advanced design concepts, such as swing-wing, highly economical Rolls-Royce Turbo-Union RB-199 turbo-fan engines, and the most up-to-date navigation and attack systems. It will be capable of all-weather day and night, high-altitude and low-level operations, with particularly good capabilities at low-level in the hostile European environment where Warsaw Pact missile and gun defences are highly developed.

The IDS version of the Tornado will become the major RAF weapon in the overland and maritime roles, replacing the ageing Buccaneer and also the Vulcan. Some reconnaissance squadrons will also replace their aircraft with Tornados. In the conventional role, the Tornado will be able to carry a heavy weapons load of free-fall retarded or cluster bombs, air-to-ground missiles will also be carried, as will other guided weapons being developed for the 1980s. The IDS Tornado will have a nuclear capability, and because of its swing-wing and economical engines, will have a considerable range, flying over hostile areas at low-level to avoid radar detection.

The Air Defence Variant will take over from the Phantoms and Lightnings now serving in the present air defence squadrons. The ADV will have a specific radius of action that is in this role. By flying combat air patrols with its wings extended, it will be less dependent on the air-refuelling tanker force and will remain on station for long periods far out over the North Sea and the Eastern Atlantic. By sweeping its wings, the ADV will be able to fly at high supersonic speeds to intercept and identify suspicious aircraft movements. It will provide better air cover for ships at sea than can be provided by land-based interceptors at present.

The ADV, unlike most new fighter aircraft, is primarily a "bomber-destroyer". It has not been designed to dog-fight at close range, although it will be armed with missiles and anti-air missiles. The first ADV squadrons will not be formed until well after the IDS squadrons are operational. The ADV will be 80 per cent common with the IDS version, and this will significantly cut support costs. Although tailored to RAF requirements, the ADV should be attractive to several overseas air forces, who require a long-range interceptor.

But while the RAF is concerned about its future aircraft programmes, it is also currently deeply involved in improving its technological expertise in other directions—such as electronic warfare, and in developing weapons that will enable it both to neutralise the enemy's defences and allow the RAF to "stand-off" from its targets and still deliver destructive weapons with a high degree of accuracy. As far as electronic warfare is concerned, the RAF is active in the field of self-protection devices, such as radar warning receivers which tell the aircraft that their aircraft is being covered by an enemy radar, thus enabling the pilot to take evasive action. As to stand-off delivery, it has already been announced that the RAF is working on laser-guided bombs, as it intends to exploit this capability to the full in the years ahead.

At the same time, the RAF is showing increasing interest in unmanned aircraft, otherwise known as remotely piloted vehicles, or RPVs (which are recoverable, or drones, which are often expendable, such as the U.S. Cruise Missile). While there are certain missions which are unsuitable for RPVs, such as maritime patrol, air refuelling and transport, there are others which offer ideal opportunities for the development of this kind of vehicle, such as nuclear strike reconnaissance and conventional attack against both land and sea targets. The RAF is studying the possibilities of various unmanned aircraft, as to ensure that it can use technology to achieve a significant advantage capability minimum cost.

Probably the most important future aircraft in the RAF's inventory after the Tornado itself will be what is currently called Air Staff Target (AST) 403, a concept with which the RAF is planning to replace its existing Harrier VTOL fighters and Jaguar jet-strike-trainers in the late 1980s. This project is of crucial importance to the RAF since with the Tornado it will eventually make up the entire RAF combat front line. The basic concept has been under study in the aerospace industry for some time, and during this coming summer, the RAF will be reviewing the solutions proposed by the industry for the various requirements for AST-403 which the RAF has suggested are crucial. AST-403 will be an offensive aircraft based on at least four main operational requirements. The first is the need for good air combat capability over the front-line battlefield. The second is flexibility in performance—the capability of undertaking a variety of roles during the aircraft's in-service life. The third is likely to be the need for vertical take-off performance, in view of the likely threat to conventional runways in an ever-overcrowded Europe. Finally, the need is for a comparatively simple, inexpensive design, rugged yet reliable, relying more on aerodynamic than on complex avionics performance, capable of ground attack missions in a battlefield role. This is a formidable list of requirements, and it has already given the aerospace industry a tough time in trying to combine them in one airframe/engine combination.

Change What already seems clear is that it is unlikely that the U.K. will build this type of aircraft by itself. Other air forces in Western Europe will need a similar type of aircraft in the years ahead, and with inflation running at present levels it seems certain that the cost is not likely to come out at much less than several billions of pounds for the several hundreds of aircraft that will be needed.

The programme, in fact, is likely to be as big as, and as costly as, the programme for development and production of the Tornado. For these reasons it is likely to be the only military aircraft programme conducted in the U.K. for the rest of the century, after the Tornado itself, as far as possible, the AST-403 shall be another major international collaborative venture on a wide scale. Preliminary discussions have already been held with the continental manufacturers, but so far no firm arrangements have been made. It seems likely, however, that before the end of this year, the U.K. Air Staff will have refined its own views on AST-403 to such an extent that the Government will be able to discuss the possibilities of international development and manufacture on a more precise basis than at present, so that through 1978 and 1979 plans for the development of this aircraft will proceed rapidly. What can be said with certainty at this time is that much more is going to be heard of AST-403 in the years ahead.

Comparisons The Tornado programme is unquestionably the biggest military aircraft venture at present being undertaken in Western Europe. With over 800 aircraft and more than 2,000 engines involved, it compares favourably with the long-production runs enjoyed by the U.S. aircraft industry. The production cost is claimed to be lower than would be possible with a purely national project, and yet the RAF is convinced that it is receiving an exceptional aeroplane.

Another new aircraft destined for the RAF is the Airborne Early Warning (AEW) version of the Nimrod anti-submarine maritime patrol aircraft. The AEW Nimrod is intended to range the skies over the U.K. and out into the Eastern and Northern Atlantic, to search for enemy bombers and perhaps also missiles seeking to attack the U.K. and Western Europe from behind. The AEW Nimrod will replace the Shackleton which has been performing this defensive role for many years. One of the AEW Nimrod's tasks, in fact, will be to help vector the ADV Tornados onto the enemy targets that it picks up. Development of the AEW Nimrod is now under way, and the first aircraft should join the fleet in the early 1980s.

RB211. The world weightlifting champion.

On November 1st 1976, Rolls-Royce RB 211 engines set a new world record. Powering their first British Airways Boeing 747, they enabled the aircraft to take off at a weight of 420 tons - beating all previous civil and military records by nearly 20,000 lbs.

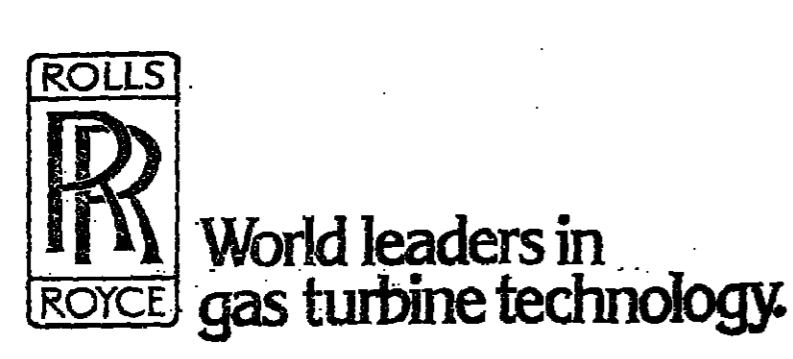
It's just one more in the long line of successes for the advanced three-shaft RB 211 - a tried and tested turbofan with a future that's assured by the consistent achievements of its past.

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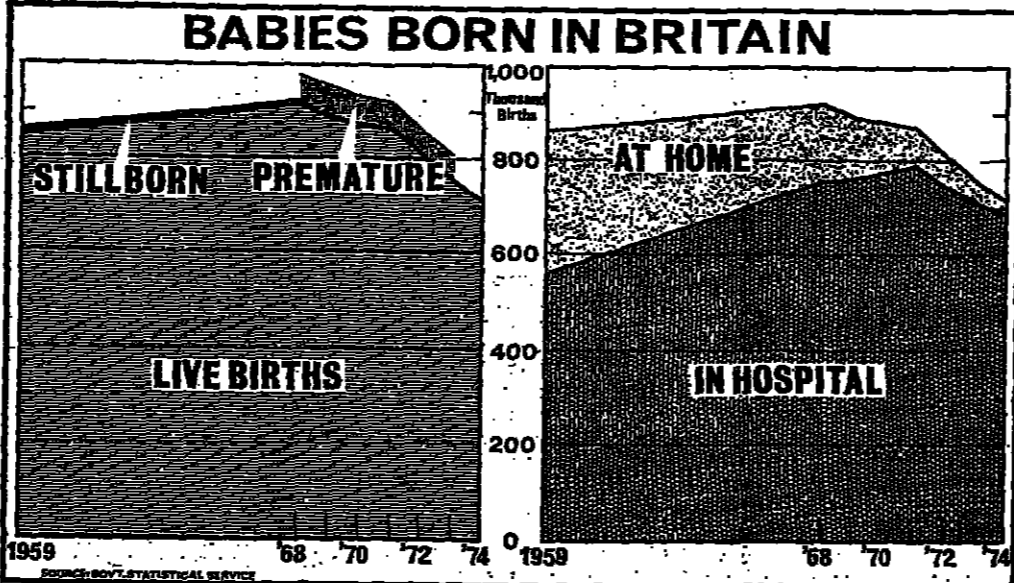
dpk...

SOCIETY TO-DAY

BY JOE ROGALY

How obstetricians keep their customers

LIC spending cuts can be from studies of the maternity... It is necessary that those services by Dr. M. P. M. Richards...



on them in hospital and that can be positively harmful. In his view about 60 per cent of deliveries should take place in hospital...

Mortality rate

If the obstetrics industry were replying to laymen it would no doubt argue in its own defence that the number of still births fell, both absolutely...

the staff, and the equipment, is due to congenital malformations; where the birth takes place can have little effect on this. In a chapter prepared for me...

Special care

Dr. Richards goes into great detail to support his deductions from the available evidence about the risks of 'bringing on' births before the due time.

Letters to the Editor

ory tax forms Sir Geoffrey Hoise, QC MP... The Rogaly described his items in 'Tax reform' (23) as being 'admittedly... perhaps that is why they... are misleading and un-

and management is properly motivated and receives a sensible reward, that businesses are not thwarted in their ambition by capital transfer tax.

GENERAL North-South Dialogue between industrialised and developing countries continues, Paris...

To-day's Events

Winchester House, E.C. 12. Cory (Horse). Nathan Way, S.E. 12. Electrical and Industrial Securities, Brewer's Hall, E.C. 12...

The cost of the consumer From Mr. W. Fletcher. Sir, In your issue of May 26 you carried an article by Adam Sedwick, treasurer of the National Federation of Consumer Groups...

Guns at Nigg Bay From the Managing Director of Highlighted Fabricators. Sir, I am confident that your correspondent Ray Daffer and Observer (May 24) would not wish to leave your readers with the impression that indeed gentlemen are anything other than excellent marksmen...

Discrimination against labour From the Managing Director, Broadbent's of Southport. Sir, The recent appalling rise in the number of unemployed young people is no accident. The blame has been inaccurately put on those officers and officials whose departments are now highlighting the disaster and thus placing a smokescreen round their own responsibility...

BALANCE SHEET AT 31st DECEMBER 1976

Table with columns for ASSETS and LIABILITIES. Total L. 17,846,875,917,423

aways on Thursday The General Manager. Sir (U.K.). What is magic about Thursday? The most casual of personnel recruitment methods would convince any innocent bystander that there was something in the air Thursday which makes all the job prospectors pore over certain newspapers...

Top rates of tax From Mr. E. Gurney. Sir, I would take Jan Hildreth's proposal (May 27) that a top rate of 50 per cent for income tax to its logical conclusion: there is no case for a top rate of income tax greater than 20 per cent...

COMPANY NEWS + COMMENT

Parkland Textile soars to £1.8m.

RECOVERY continued for Parkland Textile (Holdings) in the second half with a taxable profit of £1,339,464 against £1,344,356 to end the year to March 4, 1977 with a turnaround from a loss of £32,564 to a record profit of £1,813,764. Sales climbed £6.8m. to £23.97m.

INDEX TO COMPANY HIGHLIGHTS table with columns for Company, Page, Col., and Company, Page, Col.

ing called for Wednesday, June 22. If the scheme is approved by the necessary meeting and subsequently by the High Court it will be binding on all preference shareholders whether or not they voted in favour.

Macanie (London) improving

COURTAULDS subsidiary Macanie (London) made a pre-tax profit of £275,000 for 1976, against £281,000. The directors state that the improved trend of the second half continued into 1977.

Lindsay & Williams in profit

A RETURN to profit, and to the dividend list, is announced by Lindsay and Williams for 1976. And Mr. J. F. Swanborough, chairman, reports that although current trading remains difficult, margins are being maintained and the benefits of reduced overheads and efficient manufacturing should enable the group to sustain the improvement.

Dividend table Page 35

tors will consider payment of a further dividend as a supplement along with the next interim payment.

Table with columns for 1977 and 1976, listing various financial metrics like Sales, Trading surplus, Depreciation, Interest, Pre-tax profit, Tax, Net profit, Dividend, and Ordinary dividend.

New reinsurance offshoot for Hogg Robinson

ROGG ROBINSON has launched a new reinsurance company, the Crosswall Reinsurance Company, which will offer a specialist treaty reinsurance service to reinsurance markets world-wide and facilities for all classes of business, proportional and non-proportional, but excluding life reinsurance.

Norman Hay sees big increase

WITH THE augmented capacity of Borough Plating and greater efficiency at the main factory in Hammondsworth, Norman Hay will show a considerable improvement in 1977 profits, forecasts Mr. N. L. Hay, chairman, in his annual statement.

WALKER PREF. CANCELLATION

C. and W. Walker's plan to exchange its preference capital for ordinary shares is on the basis that for every 20 preference shares a holder will be entitled to 17 ordinary shares.

JFB/BRITISH ROLLMAKERS

In the document containing the offers by Hambros Bank on behalf of Johnson Pirth Brown the Board of British Rollmakers are recommending that holders accept the offer.



Mr. Alex Jarratt, chairman of Reed International, which is to-morrow due to announce results for the year ended March 31, 1977.

O. C. Summers second half recovery continues

THE directors of civil engineers Board representatives have decided not to recommend a dividend for 1976. In the previous year 5p net was paid.

Kayser Bondor setback

IN SPITE of action taken to reduce hoisting manufacturing capacity in the U.K. and South Africa, Courtauld's subsidiary Kayser Bondor incurred a 1976 pre-tax loss of £105,000 against a profit of £476,000 on sales up from £14.5m. to £14.99m.

They say now that as indicated in their interim report, the current year has started reasonably well and internal management accounts indicate that the profitable trend of the second half of 1976 has continued in the first quarter of 1977.

Chemring sees similar full year's profit

Pre-tax profit of radar reflective devices and cable attachments makers Chemring fell from £31,000 to £107,100 for the 26 weeks ended April 1, 1977, on rates slightly down to £0.82m.

Legal and General

W. A. Blackburn of Coventry has sold seven office blocks in the Midlands to Legal and General Assurance (Pensions Management) for a total of £7m. L. and G.'s managed fund, the largest property investment vehicle of its kind, stated that the initial yield on the portfolio was 7.25 per cent.

ISSUE NEWS

£800m. long tap The prospectus will be published on Wednesday for the issue of £800m of Treasury 11 1/2 per cent stock 1981 at a price of 98 1/4 per cent.

comment

The downturn experienced by Parkland Textile in 1975-76 was vicious and now the recovery is dramatic: the pre-tax figure is the highest in the company's history, 67 per cent. above the previous peak in 1972-73.

PHOENIX MINING

At the adjourned court meeting yesterday for the merger of Phoenix Mining and Globe and Phoenix, Mr. Fraser Bird, chairman, said that as a result of the Shareholders' Protection Committee's statement that it planned to change the Board and dispose of the services of Wall and Company, the companies had been informed that Wall and Company were no longer prepared to enter into a proposed five-year contract.



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BARCLAYTRUST logo and Barclays Bank Trust Company Limited text.

American Express International Banking Corporation

CONSOLIDATED BALANCE SHEET March 31, 1977 table with columns for Assets, Liabilities and Shareholders' Equity, and Shareholders' equity.

AMERICAN EXPRESS International Banking Corporation advertisement with logo and list of branches.

Joy 1.50



At the 78th Annual General Meeting held in London on 30th May, the Chairman Sir Reay Geddes KBE said:

THE accounts before you report on the third successive year in which there was a rise in the Company's profits. In a period which was unhelpful for business, the results demonstrate the Company's underlying strength and the benefits of its product and geographical diversity.

With three good years behind us - years in which we husbanded and carefully allocated our resources - we can now seek faster growth. This is reflected in our capital spending plans for the three years to end-1979, which are more than double the level of the previous three years. Even allowing for increased costs, they represent a significant increase. Just over a third of the total - some £84 million - will be spent in the United Kingdom for modernisation and for expansion.

An International Company at Work

This capital expenditure programme represents a change of gear. But the emphasis will still be firmly placed on selective expansion. What does this mean in practice?

The main criterion has been, and will continue to be, profitability. But the term has wider implications. We, with our partners, Pirelli, are essentially European-based. But from the early days of both companies, there was a natural movement towards overseas marketing and manufacture with the growth of motoring and road transport and the increasing use of electricity.

The growing protectionism of the 1930's and the industrialisation of the former colonial territories in the two decades following the war provided new impetus to overseas development. So that now the Dunlop and Pirelli companies together manufacture in 29 countries - in 30 when the new tennis ball factory in the Philippines comes into production - and we market our products in some 150 territories round the world.

However, the European Economic Community remains both the head and heart of our operations - the managerial and technological base. And despite the many problems of recent years there are opportunities for profitable growth in products as diverse as tyres, cables, highly specialised industrial products in which we command technical superiority, fire fighting equipment and sports goods.

It would be prudent to recognise that growth in the mature economies of the E.E.C. may well be slower than in many overseas countries in the next few years. Nevertheless, the E.E.C. remains a diverse competitive and stimulating market of high purchasing power.

This constitutes both a challenge and an opportunity - to sustain a major presence in the heartland of Europe as a means of taking advantage of growth wherever it may occur. For if we do not seize the opportunities as they occur, our international competitors will not be slow to do so. Fortunately, we are now in a strong position to take new initiatives, and the growth prospects for our present activities are encouraging.

In addition to the expansion of our operations in the U.S.A., Malaysia and Nigeria, many developing countries are at the stage where the growth of road transport, electrification and communication networks will be rapid. Dunlop experience of tropical agriculture has led us into development work in the treatment of agricultural effluent which may have wider applications. The promotion of our specialised industrial products and engineering skills is being actively pursued in more sophisticated markets.

At the same time, we are diversifying our North American activities with a new factory to make irrigation hose, in which we can justifiably claim to be world leaders, while our factories in the U.K. are being expanded to enable us to meet the growing demand elsewhere in the world.

Our knowledge of the water business and the need for irrigation has led us to establish a new division - Dunlop Irrigation Services. This is not just concerned with products but will provide consultancy services and management of large-scale irrigation projects primarily in the Third World. At present, the division is particularly active in the Middle East and has obtained its first contract for a feasibility study in Egypt. In fact, the Middle East is an area of considerable interest to the Company and a number of studies are under way for the provision of turnkey projects for tyres and selected consumer products.

So as new markets open up, the Company's response is changing and quickening. And so, too, are the attitudes of host countries. The achievement of



Hydraulic hose in India

DUNLOP

An international company at work

independence by many developing countries brought with it a surge of nationalism. In economic terms, this was often reflected in a rejection of an open international system for the movement of goods, capital and 'know-how'. In the late 1960's and early 1970's, multinational companies were often portrayed as obstructing the aspirations of developing countries. But now they have resolved to put their basic needs first and are learning that exclusive nationalism and government finance are not the only, nor always the best, solutions.

Look behind the headlines and the rhetoric of international conferences. The demand to regulate or dismantle the multinationals is being replaced by the questions - how best can their contribution be maximised? and within what kind of framework? It is not without significance that there are now some 150 bilateral agreements for the protection of foreign investment signed by developing countries.

The acceptance of the market economy - combining personal and corporate incentives with social responsibility - is far from complete but international companies are now more welcome as working partners with host countries, provided we show by our conduct that we recognise their problems and act constructively to find mutually acceptable solutions.

Political and social change goes on. We cannot wish it away even if that were desirable. So the question for an international company to answer is - how can we best adapt our policies to meet the legitimate and durable aspirations of governments without damaging our essential role as creators of wealth? This is a continuing challenge to management.

Just as the nature of the political environment is changing, so are the trading environments. As a result of inflationary pressures, there are government-imposed price controls in virtually every country where we operate, with the exception of Germany and the U.S.A. These are often seen as a direct quid pro quo for wage and salary restraint. Many economists would argue that these price controls cannot, for long, achieve their primary purpose in restraining wage demands, but lead to distortions in the market place, and adversely affect capital formation. Moreover, they bear most heavily on the large and visible firm; and there appears to be a real danger that they will become semi-permanent features of the industrial environment.

In this situation, to achieve and maintain adequate profit margins means ever greater emphasis on cost saving and productivity. But response to competitive change and new investment suffer; so therefore does growth and the creation of new jobs. And that involves people.



Dunlopillo in Malaysia

Participation

Dunlop now employs 102,000 people, of whom 54,000 work outside the United Kingdom. Our expansion overseas has been achieved by harnessing the vitality, imagination and skills of many nationalities and races. In building the business, they have participated in it in the most practical and meaningful way possible. But the word 'participation' has taken on a highly political meaning. Why is it that so many progressive and moderate businessmen in this country are so resolutely opposed to the proposals of the Bullock Report?

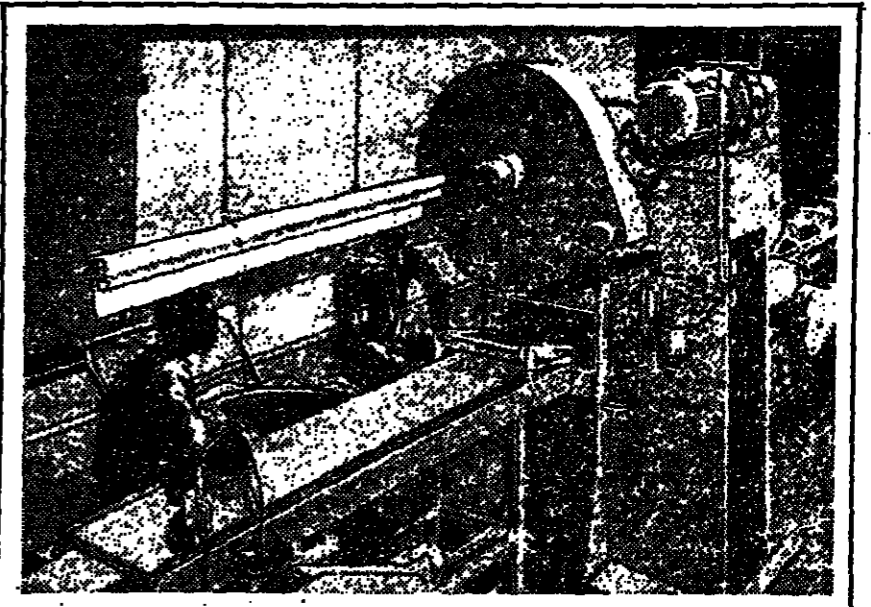
There is no need to rehearse again the false and misleading comparisons with German experience which took place in a very different environment. Yet there is no doubt that some people looked to the Bullock Enquiry to indicate a new way forward in industrial relations. We do not believe the report provided it. On the contrary, by concentrating on worker directors, it became fascinated by the tip of the iceberg; and so failed to relate properly to the nine-tenths beneath.

Even the trade unions are divided - horizontally and vertically. And not surprisingly, for there is a genuine ethical problem for trade union nominees in protecting and promoting the interest of their British constituents, whilst balancing that against the interests of the several stakeholders in the business in many countries. It sounds well to say that trade union directors would be representatives not delegates, but how does an honest and concerned trade unionist resolve the dilemma?

Nor is this a theoretical question. The sceptical responses from all levels within Dunlop have made it clear that they are well aware of this dilemma and are not interested in Board membership if it conflicts with their trade union's traditional role.

But opposition to worker directors imposed by law should not be construed as hostility to more participative management. People are genuinely interested in greater involvement at the point where it matters to them most - at their place of work. The need to induce a greater sense of understanding, responsibility and competitiveness remains. If that can be achieved by a greater degree of participation, then we should be prepared to put it to the test.

In this respect, we believe that there is much to commend the C.B.I. approach of a Participation Agreement which can be tailored to suit the needs of the individual enterprise at a particular stage in its development, and with the emphasis on building a participative structure from the bottom. One obstacle to be overcome is that in recent years more and more matters have become subject



Floor tiles in Kenya

to trade union negotiations. This has led to increasing fragmentation with each sectional interest negotiating separately. We are working hard to forge links between the separate consultative committees, first on a site by site basis, and then at the level of our product divisions which are sizeable businesses in their own right.

This in itself is a major exercise and will involve a considerable consultative programme. How much further, and how fast, we can go will depend on the value of this experiment and the response in practice of those who work with us. But if it is to succeed, any system must also strengthen the authority of the manager to manage, and of the trade unions to discharge their part of every agreement. If we can get this right, not just in the Company but in the country, then it could be a real step forward in the competition for secure productive jobs, rising social standards and quality of life. Surely this would appeal to the majority of people in this country?

The Way Ahead

The performance of the last three years, the range of skills, and the international strength and vitality of the Company augur well for the future. So, with the Company on the move again, the Board felt that the time was appropriate to ask shareholders for additional funds in the form of the rights issue.

Although our borrowing facilities were adequate for the foreseeable future, we decided that it was desirable to lower the proportion of borrowings to total funds employed and to be in a position to put more permanent capital into our subsidiaries. At the same time, we announced that unless there were any unforeseen circumstances, the dividend for 1977 on the increased capital would be increased to 5.3p per share net, equivalent to 8.153p with the related tax credit now in force.

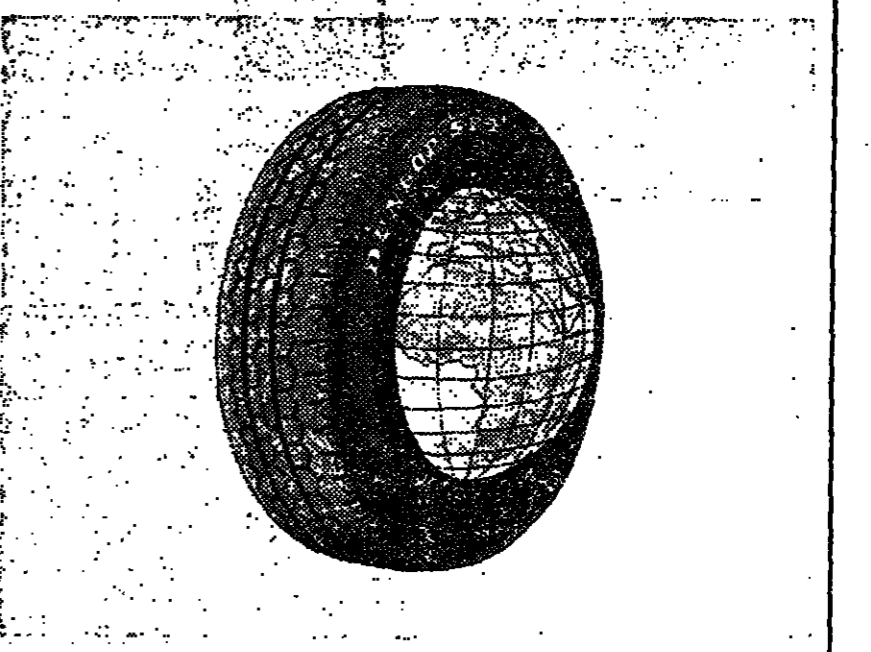
As to the current year, I cannot usefully add to the statement in the recent prospectus for the rights issue that we would expect to be able to maintain good progress.

The Board

One of the resolutions before the meeting is to elect Mr. J. R. Scott as a Director of Dunlop Holdings Ltd. Mr. Scott, who joined the Board of Dunlop Ltd. in 1975, has been with the Company for some 20 years in a number of senior posts at home and overseas, and is presently responsible for the Overseas Group. His election would strengthen the executive element of the Board.

It may be of interest to shareholders to know that the average age of the executive directors of the Company will then be 51 and of the Board as a whole 56. As the improving results have shown, the management team at headquarters and in the field is strong.

On a more personal note, the business will be nearly 90 years old next year. I have served it for about half that time. I feel, therefore, that it would now be appropriate for me to tell you that it is my intention to retire from the Chairmanship at the conclusion of the Annual General Meeting in 1978. The Board proposes to invite Mr. Campbell Fraser, the Managing Director to assume the Chairmanship of the Board on my retirement.



Tyres worldwide

Copies of the speech, the Annual Report and Accounts, and "Report to U.K. Employees 1976" can be obtained from the Secretary, Dunlop Holdings Limited, 25 Ryder Street, London SW1Y 6PX.



DUNLOP HOLDINGS LIMITED

Dunlop now aiming for faster growth

WITH THREE good years behind it Dunlop Holdings, the international manufacturing group, would now seek faster growth, Sir Reay Gaddes, chairman, told yesterday's annual meeting.

This was reflected in Dunlop's capital spending plans for the next three years, to end 1979, which were more than double the level of the previous three years.

"Even allowing for increased costs, they represent a significant increase," Sir Reay observed.

Just over a third of the total some £200 million is to be spent on the U.K. for modernisation and expansion.

Turning to prospects for the current year, the chairman said it could not usefully add to the statement in the recent prospectus for the one-for-three rights issue which was expected to be able to maintain good progress.

"The capital spending programme represented a change of view, Sir Reay said, but the group would still be firmly based on selective expansion. The main criterion would continue to be profitability.

Despite the many problems of recent years, there were opportunities for profitable growth in products as diverse as tyres,ables, highly specialised industrial products, fire-fighting equipment and sports goods.

The "EEC" remained the managerial and technological base of the group. But it would be prudent to recognise that growth in the mature economies of the EEC might well be slower than in many overseas countries in the next few years, the chairman said.

Nevertheless, the EEC remained a diverse, competitive and stimulating market of high-purchasing power.

This constitutes both a challenge and an opportunity to sustain a major presence in the heartland of Europe as a means of taking advantage of growth wherever it may occur, Sir Reay said.

"For if we do not seize the opportunities as they occur, our international competitors will not be slow to do so. Fortunately, we are now in a strong position to take new initiatives, and the growth prospects for our present activities are encouraging."

In addition to the expansion of operations in the U.S., Malaysia and Nigeria, many developing countries were at the stage where road transport, electricity and communication networks would be rapidly developed.

Dunlop was diversifying its North American activities with a new factory to make irrigation equipment in which it could justifiably aim to be world leaders, Sir Reay said.

A new division had been established—Dunlop Irrigation Services. It was not just concerned with products, but would provide consultancy services and management of large-scale irrigation projects primarily in the third world. The division was particularly active in the Middle East.

Sir Reay announced that the board would be re-elected at the annual meeting at the end of the 1976 financial year. The Board proposed to invite Mr. J. Campbell Foster, managing director, to succeed him.

At other meetings yesterday chairman reported as follows:

The Laird Group, Sir Ian Laird said, as far as National Aviation was already in the hands of the British Aerospace Corporation and the final act of vesting the £20 million of shares held in Cammell Laird Shipbuilders would take place on July 1.

The compensation proceeds would be reinvested in industrial assets, including the further development of the existing group.

Turning to prospects for 1977, Sir Ian reported that the uptick in profits in 1976 was the result of a sharp improvement in the contribution from the group's substantial interests outside metal industries. The metal industries division which is dominated by steel, did well to break even. This result was made possible by the new steel-making plant which produced substantial cost savings, he said.

The chairman felt that the task of moving profits ahead in 1977 was likely to fall once again upon the group's diverse interests outside steel, and a number of factors suggested there was a reasonable chance of further improvement taking place.

In the first four months, group profits were running in advance of the levels seen in the same period in 1976. In addition, more capacity in motor components, particularly in West Germany, was coming on stream.

The order-book in transport engineering and in other areas in the Group remained satisfactory.

In particular, demand for the group's resistance welding equipment, both from home and abroad, was currently strong.

Sir Ian said that based on these prospects and on the group's strong liquidity position, the current year should be one of greater opportunity for Laird.

Magnolia Group (Holdings): Sir R. Gaddes reported that in the first four months of this year results were already showing an encouraging improvement compared with 1976.

"I feel reasonably confident that we can expect this situation to continue barring unforeseen circumstances."

The development of overseas markets was being vigorously pursued and the group was selling to a greater number of customers than ever before.

The chairman said he was convinced that the decision to widen the range of mouldings would further enhance future prospects.

JOHN MENZIES
Sales of John Menzies (Holdings) for the first quarter of 1977 show an increase on 16.5 per cent.

over the equivalent period last year, say the directors. They expect half-year profits to show a substantial increase over last year's half-year results.

Due to the importance of the state of the economy on Christmas trading, it is not possible to forecast the extent of the full year's increase, although a satisfactory rise is expected, they state.

Should the basic rate of income tax be reduced to 30 per cent, a third interim dividend will be paid of an amount equal to the reduction in the tax credit from the current rate of 35 per cent. It is stated.

The dividend will be payable at the same time and to the same holders as the interim dividend for 1977/78.

Argus more than doubled to £0.93m.

For 1976, pre-tax profits of Argus Press Holdings, a subsidiary of British Electric Traction Company, more than doubled from £434,277 to a record £924,845 after £448,800, against £185,800, at half-year.

Turnover for the year was £11.1m, compared with £9.14m. Earnings per 25p share are stated as 12.3p (4.57p) and the dividend is lifted to 2.25p (£242,438) including a special dividend of 1.00p (2p net), 1.25p (5p net) with a final of 9p net.

Tax took £508,544 (£258,220) and minorities £18,941 (£16,053). For 1975 there were extraordinary profits of £293,140.

The amount retained is £130,880 (£581,707).

The subsidiary Argus Press Ltd, reveals record taxable profits of £597,490 against £449,432 on turnover of £11.1m (29.2m).

Earnings per £1 share are more than doubled from 9.34p to 22.8p and the dividend is stepped up to 15.75p against 11.9611p including a special of 6.9911p, with a final of 8.75p net.

Tax took £508,544 (£258,458) and minorities £18,941 (£16,938). There were extraordinary profits of £293,140 for 1975. A total of £128,355 (£89,559) is retained.

FT Share Information Service

The following securities have been added to the Share Information Service appearing in the Financial Times—

FFI 14pc 1983 (Section: Loans, Miscel.)

Xonics Incorporated (Section: Americans)

DIVIDENDS ANNOUNCED

Company	Current payment	Date	Current payment	Total year	Total last year
Allied London Int.	0.89	July 22	0.81	—	2.49
British American	1.71	—	1.56	1.71	1.35
Eurolon Plasmas	1.5	—	1.5	—	4.44
Bonifay Int.	1.31	Aug. 13	1.31	—	6.52
Kayser Bander	1.74	July 23	1.58	1.74	1.38
Lindsay & Williams	1.0	July 23	0.71	1.0	0.83
Parkland Textiles 2nd Int.	1.63	—	0.25	2.84	10.36
Stag Line Int.	3.8	—	3.8	—	3.0
O. C. Summers	Nil	—	1.5	Nil	—

British & American Film lower

Excluding the results of wholly-owned subsidiaries British and American Film Holdings reports a decline in taxable profit for 1976 from £44,218 down to £38,738. Profit for the subsidiaries slumped by £2,674m to £9.72m, an turnover down from £1.26m to £0.44m.

At half-time the holding company showed a profit of £24,104 (£12,356) and the subsidiaries £112,321 (£59,622).

Sir John Foster, the chairman says that the holding company hopes to start production on one of its own films either later this year or in early 1978 and he forecasts a continued improvement in finances for the current year.

Stated earnings per £1 by the holding company were 0.811p (0.816p) and by the subsidiaries 6.249p (22.21p). The net dividend is increased to 1.7074p (1.5112p).

Company	1976	1975
HOLDING COMPANY		
Owned interest, Inc.	68,230	48,877
Dividends	1,277	1,115
Interest received	2,607	12,571
Depreciation	2,520	123
Director's remuneration	2,580	2,580
Auditor's remuneration	9,800	2,200
Interest paid	176	288
Losses, net	14,258	44,218
Pre-tax profit	39,726	24,228
Taxation	24,228	24,228
Unfranked div.	28,900	17,238
Dividend	11,722	17,238
Minority interest	138,422	52,482
Dividends	47,889	42,438
Minority interest	111,532	108,254
Carried forward	148,200	138,418

WOLLY-O-WEDD SUBSIDIARIES

Turnover	42,425	1,237,272
Pre-tax profit	14,222	32,246
Tax credit	6,990	54,522
Dividend	39,998	39,998
Director's remuneration	14,222	14,222

* Payment for lease variation and rent reduction. † From subsidiary company. ‡ Net surplus on sale of investment. § After exchange losses of £118m. ¶ C. J. Harvanian (Insurance Charge).

The directors have paid a dividend from a subsidiary to the holding company out of the subsidiary's profit for 1976, without making good its past losses.

The year proved particularly inopportune for the British film industry. Penal rates of U.K. tax, which discouraged international talent, among other factors, restricted the number of British films produced, says Sir John.

The subsidiaries charge film production costs to the accounts at date of delivery of each film to its distributor and credit revenues as they arise. The 1976 figures therefore reflect, mainly, the partial recovery of production costs and profit participation in past film productions. It is stated.

44 companies wound-up

Orders for the compulsory winding up of 44 companies were made by Mr. Justice Brightman in the High Court yesterday.

They were: Double Arrow, Direct Drive Design, Grey (Fitted), F. Hill and Co. (Hauliers), Stanhope (Farm Works) and The Contract Furniture Equipment and Shopfitting Company.

London Leval and Allied Properties, O. C. Products (Harlow), Wheatthamsted Engineering and Spinning Company, Concrete Frame Construction (Southampton), Ross and Adelford, Reddon Road Services, Alcco Aron Building Consultants, Blunt Brothers, Bricknell (Builders), Ryman (General Carriers), Chemical Services Herts. and Humberia, S. and S. P. and F. Company, Abstrigton, E. W. Hewlett, Howard House Investments (Marblestone), Headream and Spectral Plating Company, Condit Holdings, Chadbrook Engineering Company, American Handbags, Supreme Display Youngplains, Hurstbut and M. Hyman and Sons (Hemel), N. E. Carrell, Texas Building Services, Cornered Fashion Shops, C. J. Harvanian (Insurance Brokers), Tacovsaw and The Shilena Hosiery Company, J. S. Beagley, Bath and South West Contractors, Twinkle (Installations), Durton Developments (Kirkham) and Greek Revolution.

CMB, s.a.

EXTRACTS FROM THE DIRECTORS' REPORT TO THE ORDINARY GENERAL MEETING OF MAY 4, 1977

CMB's activities have continued in 1976 to suffer from the effects of the economic crisis in the world. The drop in freight supply felt by its regular services as from the summer of the previous year, has been confirmed and has directly influenced the loading factor of vessels. The ephemeral economic revival—which occurred towards the middle of the year under review—contributed slightly towards an improvement in the situation, but results are nevertheless in recess in comparison to those of 1975.

The lines to Africa have been affected by the political events which occurred in Angola and Rhodesia, causing the internal communications network to be thoroughly disturbed: prolonged paralysis of the railroads to Lobito and closing of the Rhodesia-Mozambique border, isolating Beira from its natural hinterland. On the other hand, the new railway linking Lusaka to the port of Dar-es-Salaam has come into service.

In the American sector, operational conditions have proved satisfactory on the South American run but have remained very difficult on the Gulf of Mexico. The revival of the American economy has enabled Dart Containerline to improve its loading coefficient on the North Atlantic service.

On the Far East line, the Franco-Belgian Services have carried on their implantation with promising results. The "Mercator" container vessel with a loading capacity of 1,450 twenty foot units, which is jointly owned by CMB and Adlers, has just been commissioned.

During the financial year, all efforts of the company have tended towards the adaptation of its exploitation to the circumstances on each of its liner services, the modernization of its naval equipment and the diversification of its operations.

It has participated in the creation of the "Euro-Arab Sea Trailer Ltd. (EAST)", shipping line, in which it is associated with the American group Global Transport Organization. Since September last, EAST has been operating a line between

Marseilles and Yendi on the Red Sea, with large capacity ro/ro barges. The door-to-door service throughout Saudi Arabia is ensured by a local company, also formed by EAST, Transarabian Transport Company (TAATCO).

In October, CMB was admitted to the "Continental West Africa Conference COWAC", conference of lines linking Western Europe with the Dakar-Mossamedes range. The first sailing of this new line took place in February last, within the framework of a joint service with Société Navale Chargeurs Delmas-Vieljeux (Paris), and Woermann Linie (Hamburg). We may mention here the assistance in personnel the Company is providing to the Société Ivroise de Transports Maritimes (STRAM).

As regards port equipment, CMB has acquired a share in the capital of Société Belgo-Anglaise des Ferry-Boats, which operates the Ocean Container Terminal at Zeebrugge, as well as a 50% share in the capital of the new STOCATRA company, which operates the largest bulk terminal at Antwerp.

Finally, an event of importance of which is worth mentioning, is the signing in October, 1976, of an Association Agreement between Compagnie Maritime Latine and CMB. Beyond the terms of the document which provides for the acquisition by CMZ of a minority share in the capital of Agence Maritime Internationale (AMI) and a new CMB and AMI investment in the increased capital of Agence Maritime Internationale du Zaïre (AMIZA) is thereby expressed the common will of the two partners to strengthen, to their mutual profit, their collaboration in all fields of their respective activities.

For 1976, the benefit for distribution amounts to BF 170,532,411, against BF 171,990,980 for the previous year, after depreciation amounting to BF 979,121,254, against BF 1,297,086,076. The net dividend for the year was fixed at BF 280, against BF 265.

CMB, s.a. St. Katelijnevest 61, B-2000 ANTWERPEN, BELGIUM.

MONEY MARKET

Interest rates firmer

Bank of England Minimum Lending Rate 8 per cent. (since May 12, 1977)

Fixed period interest rates were firmer for the longer periods in the London money market yesterday, although discount houses buying rates for Treasury bills remained fairly steady. The six-month sterling certificate yield rose to 8 1/4 per cent, from 8 1/8 per cent, while the one-year held increased to 9 1/8 per cent, from 9 1/4 per cent. The firmer Treasury bills had a small amount of nervousness about the future trend in U.S. interest rates, and concern about

sterling, following the bout of pressure on the pound in the foreign exchange markets last week. This did not carry through to Treasury bill rates, however, with discount houses buying rates for three-month bills remaining at 7 1/4 per cent.

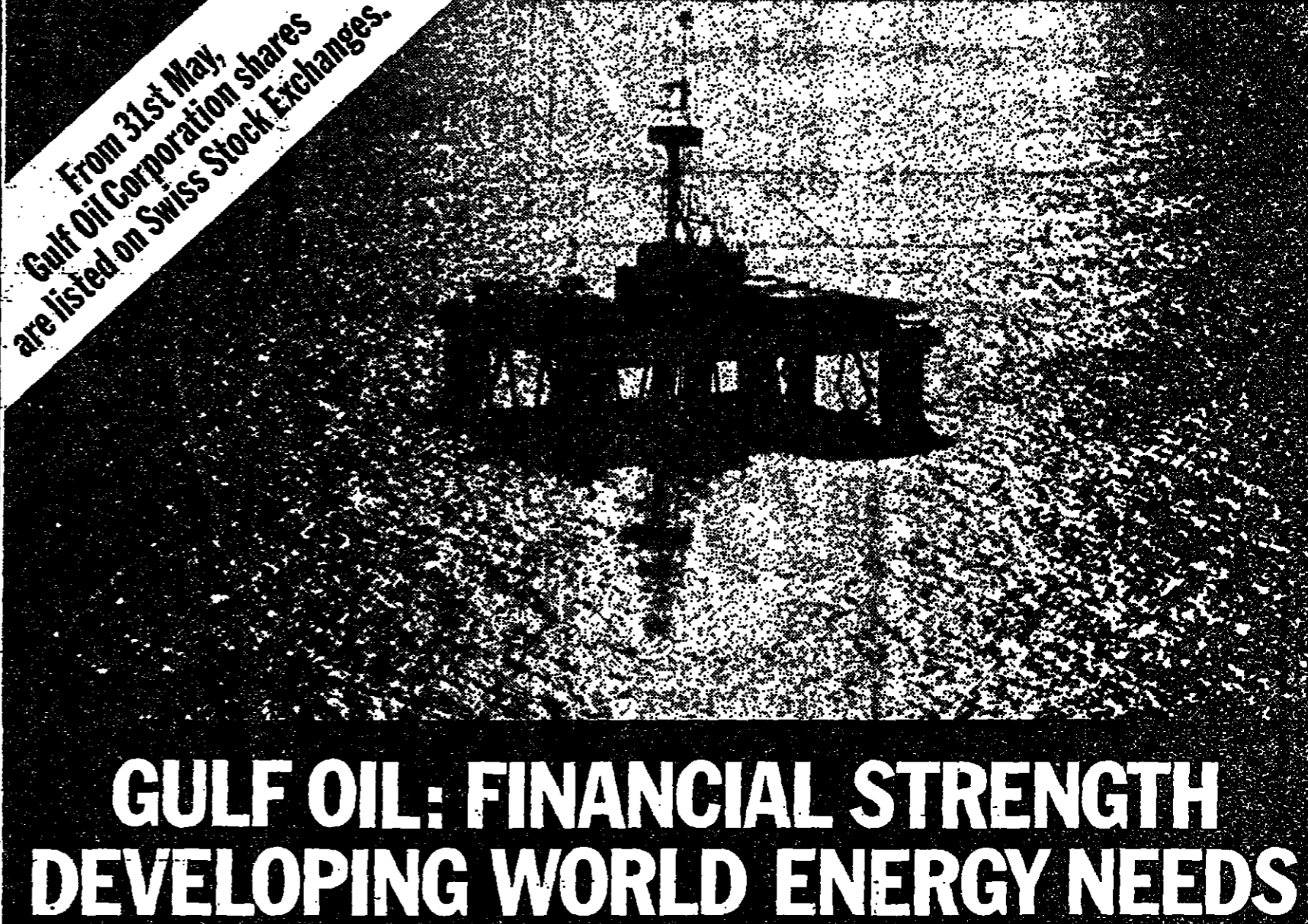
Day-to-day credit was expected to be in good supply yesterday, but the market required some assistance from the authorities at the close. The Bank of England bought a small amount of Treasury bills from the discount houses and also a small number of local authority bills.

Banks carried forward surplus balances, and Government disbursements exceeded revenue payments to the Exchequer. On the other hand there was a net taking-up of Treasury bills to finance a rise in the note circulation, plus repayment of advances made by the authorities on Friday.

Discount houses paid 7 1/4 per cent, for secured bills 7 1/8 per cent, and for unsecured bills 7 3/4 per cent, before closing at 4 1/8 per cent.

In the interbank market overnight loans opened at 7 1/4 per cent, and ended to 6 1/4 per cent, before rising to 7 1/4 per cent, and closing at 4 1/4 per cent.

Mar 30	6 months	12 months	18 months	24 months	30 months	36 months	42 months	48 months	54 months	60 months	72 months	84 months	96 months	108 months	120 months
Bank of England	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Commercial	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75	7.75
Local authority	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12
Treasury bills	7.12	7.12	7.12	7.12	7.12	7.12	7.12	7.12	7.12	7.12	7.12	7.12	7.12	7.12	7.12



Gulf Oil: Financial strength developing world energy needs

RECENT FINANCIAL HIGHLIGHTS

- Earnings of \$816 million, or \$4.19 per share, in 1976 were the second highest ever.
- Capital and exploration spending for the rest of the decade to exceed \$2,000 million a year, with up to 75 per cent devoted to the worldwide search for energy.
- Long-term portion of the Company's debt at its lowest point in nine years and only 14 per cent of total capitalization.
- Cash and marketable securities trebled since 1971 to nearly \$2,000 million at year-end, \$2,400 million at 31st March, 1977.
- Three increases in dividends since 1974, raising current annual dividend level to \$1.80 per share yielding Gulf shareholders one of the highest returns in the industry.
- First quarter 1977 saw first profitable quarter for minerals ever, although unusually cold weather and lagging chemical demand held total earnings below year-ago level.

PETROLEUM-EXPLORATION AND PRODUCTION United States

Progress was made during 1976 in arresting the decline in U.S. crude oil production. Natural gas production turned upward in the fourth quarter of 1976 and for the first three months of 1977 averaged three per cent higher than a year earlier.

The Company looks to the rapid development of existing leases, particularly in the Gulf of Mexico, and to new on-shore discoveries in West Texas, in Louisiana and Rocky Mountain states, as well as enhanced recovery techniques. Total drilling and seismic work on-shore and off-shore in the U.S. represents more than nine per cent of all industry exploratory effort.

International

Gulf's most active area outside North America is in the North Sea, where the Thistle field will come on production later this year. By 1983, the Company expects that their share of North Sea production will be 70,000 barrels per day.

Gulf has substantial natural gas discoveries in the Canadian Arctic and an active exploration programme in 13 overseas countries which will involve expenditures of approximately \$140 million this year. The Company is one of the largest producers in West Africa.

PETROLEUM-REFINING AND MARKETING United States

Operations became a meaningful contributor to corporate profits in 1976. Operating philosophy emphasizes profits over volume, but Gulf maintained its share of the gasoline market at approximately eight per cent during 1976 in the 29-state area in which it competes.

Canadian Operations

Gulf Canada is Canada's second largest petroleum company and about 68.3 per cent of its ordinary shares are held by Gulf.

International

Europe remains Gulf's most important overseas marketing area with more than 4,000 retail outlets in nine countries. Gasoline accounts for 20 per cent of Gulf's European product mix compared with 14 per cent for the industry as a whole. In Asia, Gulf has joint ventures in Korea, Japan and Taiwan.

Chemicals

Gulf's chemical operations earned \$148 million in 1976, representing 18 per cent of total corporate profits. Worldwide chemical sales passed the one thousand million dollar mark for the first time. A new olefins plant in Texas came on stream in February 1977 and increased annual ethylene capacity to just under three thousand million pounds. A new large polypropylene plant

and a high-density polyethylene plant, both in Texas, are expected to become operational in 1978.

Minerals

Gulf is a significant coal producer in the U.S. and will be one of that nation's largest uranium suppliers. Full production from their Rabbit Lake uranium mine in Canada was achieved last year.

1976 FINANCIAL HIGHLIGHTS

	MILLION \$ OF DOLLARS		%
	1976	1975	(Increase)
Total Revenues	18,403	16,042	15
Net Income	816	700	17
Capital and Exploration Expenditures	1,742	1,546	13
Total Assets	13,449	12,425	8
Cash and Marketable Securities	1,989	1,837	8
Long-Term Debt	1,168	1,294	(10)
Return on:			
Average Shareholders' Equity	12.2%	11.2%	9
Average Employed Capital	10.4%	9.6%	8

PER-SHARE DATA

	\$4-19	\$3-60	16
Net Income			
Cash Dividends	1.73	1.70	2
Shareholders' Equity	35-62	33-17	7

For a copy of the Gulf Oil Corporation 1976 Annual Report, write to: Public Affairs Department, Gulf Oil Company, Eastern Hemisphere, Gulf House, 2 Portman Sq, London W1H 0AN, England.

THE SCOTTISH INVESTMENT TRUST COMPANY LIMITED

Invested Report for the six months to 30 April 1977 (unaudited)

	30 April 1977	31 October 1976
TOTAL ASSETS	£104,854,000	£92,404,000
NET ASSET VALUE per Ordinary Stock Unit	116.9p	102.2p

Distribution of Assets

	39.6%	30.6%
Equities: United Kingdom		
United States	35.6%	43.3%
Europe	4.7%	6.5%
Far East	11.0%	10.9%
Others	5%	4%
Total Equities	91.4%	91.9%
Fixed Interest and Cash	8.6%	8.1%

	6 months to 30 April 1977	6 months to 5 May 1976
GROSS INCOME	£2,025,000	£1,738,000
TAXATION	£747,000	£636,000
AVAILABLE for Ordinary Stockholders	£1,024,000	£870,000
DIVIDEND per Ordinary Stock unit	0.90p	0.75p

Interim Dividend will be paid on 25th July 1977 to Stockholders registered 3th June 1977, and will absorb £762,000.

All comparative figures have been adjusted to reflect the merger with The Second Scottish Investment Trust Co. Ltd. on 1st November 1976. Registered Office—6 Ablyn Place, Edinburgh EH2 4NL.

BHF-BANK presents its 1976 results:

Results for the year ending 31.12.76 exceeded the satisfactory profits of the previous year. Capital and reserves were increased to DM 296 million providing a solid basis for our policy of controlled expansion. One significant step in this direction is the opening of a full service branch in New York.

Consolidated Balance Sheet as at 31 December 1976 (in thousand DM)

Assets		Liabilities	
Cash, Bundesbank and postal giro	530,051	Due to credit institutions	4,626,296
Bills	40,482	Bonds	3,785,289
Due from credit institutions	598,185	Acceptances and promissory notes	5,431,097
Bonds and debentures	3,664,831	Provisions	71,130
Other securities	780,267	Other liabilities	431,369
Due from customers	230,315	Share capital	100,060
Long-term loans in mortgage banking	3,551,416	Reserves	192,626
Investment in subsidiaries and associated companies	4,966,002	Consolidated profit	32,980
Other assets	35,714		
Total assets	14,803,416	Total liabilities	14,803,416
		Endorsement liabilities on bills of exchange in circulation	311,191
		Guarantees and similar liabilities	1,327,749
		Volume of business	16,442,356

The complete Annual Report in German and summarized Annual Reports in English and French will be furnished on request.

Managing Partners: Dr. Hans Georg Gotthelmer, Herbert H. Jacobi, Dr. Hanns Christian Schroeder-Hohenwarth, Klaus Subjeltzik, Rüdiger v. Tresckow

BHF-BANK

BERLINER HANDELS- UND FRANKFURTER BANK

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MEMBER OF THE INTER-ALPHA GROUP OF BANKS

BIDS AND DEALS

Ashley Industrial sells Reliance stake

Ashley Industrial Trust, a subsidiary of Northern Investment Bankers, has sold its 61.1 per cent stake in Reliance Knitwear to L.L.M. The shares have been placed with institutions at 33p a share. Ashley has been the majority shareholder since 1973 when it acquired a 60 per cent stake in the company from Mr. David Djanogly and his brother Mr. Raphael Djanogly at 45p a share. Mr. Cyril Choularton, following the placing, will be resigning from the Board of Reliance. Accompanying news of the placing, which was made by Capel-Cure Myers, Reliance's stockbroker, is a revised forecast from Reliance of not less than 277,000 pre-tax for the year ending April 30—in line with the statement made by Mr. Ray Newman, chairman of Reliance in February—and a forecast maximum permissible dividend of 4.25p gross for the year. Last year Reliance, which made pre-tax profits of £12,000, paid only a final of 1.54p; the current forecast payment restores the level of dividends paid in 1975 plus a maximum increase of 10.3 per cent.

Yesterday Reliance's share price rose 2p to 33p on the news. **NATIONWIDE LEISURE** Net assets of Gregory and Hephruan at September 30 were £18,464 and profit before tax for year to that date was £4,029. The acquisition has been financed initially by short-term bank borrowing, but agreement has been reached in principle with Industrial and Commercial Finance Corporation for a loan in the sum of £20,000 bearing interest at 13 per cent and repayable by equal instalments over eight years, commencing May 31, 1980. After repayment of the short-term bank borrowing £60,000 of the loan will be used to reduce existing bank overdrafts.

EUROPEAN FERRIES The Secretary of State for Prices and Consumer Protection has decided not to refer the following merger to the Monopolies and Mergers Commission: R. Elliott and Co. and Newall Machine Tool; Cable Trust and Globe Investment Trust; Johnson and Firth Brown and British Roll-makers Corporation.

RUBEROID Ruberoid has received acceptances in respect of 91.3 per cent of the Vulcanite Preference shares for which the offer was made. The balance will be acquired compulsorily.

LAMSON INDS. The scheme of arrangement between Lamson Industries and Ordinary holders other than

acceptance until June 9, 1977. The cash alternative has now closed. The following directors are no longer shareholders: W. M. Nichols, R. F. Fotheringham, D. C. H. McLean, V. Heroy, P. R. Evans, B. H. Patten, Sir W. O. Campbell Adamson, J. D. Grant and E. K. Goldie.

GROVEBELL/GREGORY & HEPHRUN Grovebell Group has purchased the entire capital of Gregory and Hephruan which carries on business at Burnley as importers and distributors of hand and agricultural tools as well as manufacturing agricultural equipment. Consideration is £138,467 in cash and at the same time Gregory and Hephruan has repaid from its own facilities loans from the vendors of £58,132.

NO PROBES The Secretary of State for Prices and Consumer Protection has decided not to refer the following mergers to the Monopolies and Mergers Commission: R. Elliott and Co. and Newall Machine Tool; Cable Trust and Globe Investment Trust; Johnson and Firth Brown and British Roll-makers Corporation.

HIGHGATE OPTICAL STAKE SOLD TO DUTCH GROUP Bayline announces that having received Bank of England permission, it has sold its 73 per cent holding in Highgate Optical and Industrial Company to Content Beheer BV, Holland. Highgate Optical will remain quoted on the London Stock Exchange. Content Beheer is the wholly owned Netherlands holding company of Bayline. Its major subsidiary, at present, is Content Beheer, one of the largest Dutch employment agencies. Commenting on the sale, Mr. Ian Rankin, joint chairman of both Bayline and Highgate Optical, said the sale will give Highgate a stronger base for expansion than it would have had had it been restricted to U.K. financing.

LAND & HOUSE Acceptances have been received from 1233 Ordinary shareholders (81.1 per cent) in respect of £283,390 of the £350,000 mortgage of the Ordinary of Land and House Property Corporation subject to the offer by Friends' Provident Life Office. In respect of the Preference offer for Land and House, acceptances have been received in respect of 50,885 Preference shares (83 per cent). Both offers have therefore become unconditional and remain open for acceptance until further notice.

PONTINS Pontins has completed the acquisition of the 49 per cent of the capital of Solar Apparatus and Equipment and Speenheat not previously owned by the company. Consideration was the issue of a total of 340,000 Ordinary shares. The vendors have agreed to retain the shares for a minimum 12 months.

T. Cowie improves Colmore offer

T. Cowie has improved his bid for Colmore Investments, rejected so far by the Colmore Board, by including the Cowie interim dividend for the current year. The terms now are one Ordinary Cowie share of 5p each and 50p cash plus the interim dividend of 0.66p net a share for the half year to March 31 1977 for every three Ordinary Colmore shares of 25p. The dividend was excluded from the original offer. Mr. Tom Cowie, chairman of T. Cowie, tells shareholders of formal offer document that the issued share capital of Colmore, Mr. Cowie says that Colmore's approach to the deputy chairman of the Colmore Board, Mr. Charles Cowie, was rejected without any opportunity being given to discuss the proposed offer terms or the future of Colmore. Mr. Charles Cowie believes that a merger of Colmore with Cowie would be of benefit to both companies and their shareholders. Closing date is Monday, June 20.

JITRA SWITCHES INVESTMENT In order to concentrate the investments in companies operating abroad, particularly Malaysia, Jitra Rubber Plantations has arranged to sell its investment of £45,000 in preference mortgage of leasehold premises, known as South Shore Market, Blackpool to Sunaki Estates for £37,500 satisfied by the issue of 7300 Ordinary shares at 21s 2d premium of £4 per share. Repayment terms have been renegotiated with the mortgagee (M. P. Evans and Co.) and the principal sum is now repayable in nine equal instalments of £5,000 commencing in 1978. Profit of Jitra will decline by £4,500 in respect of unranked interest in the £45,000 mortgage sold and will rise by £2,625 income of £2,825 based on the anticipated dividend on the Ordinary shares of Sunaki.

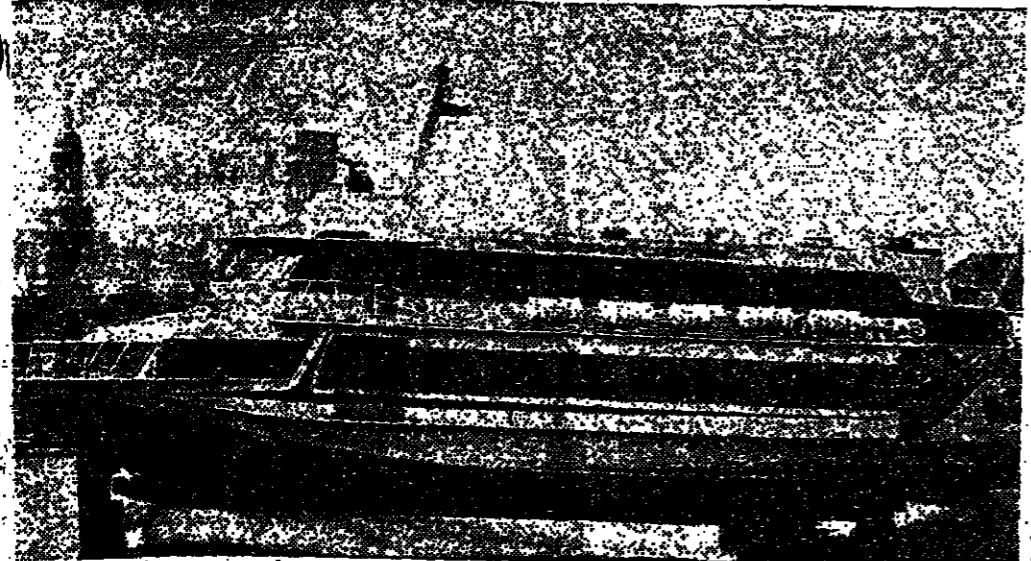
Notice of Redemption Massey-Ferguson Nederland N.V.

9 1/2 % Guaranteed Sinking Fund Debentures Due July 1, 1982 NOTICE IS HEREBY GIVEN that, pursuant to the provisions of the Fiscal Agency Agreement dated as of July 1, 1975 under which the above described Debentures were issued, Citibank, N.A., as Fiscal Agent, has drawn by lot, for redemption on July 1, 1977, through the operation of the sinking fund provided for in the said Agreement, \$1,000,000 principal amount of Debentures of the said issue of the following distinctive numbers:

COUPON DEBENTURES OF \$1,000 PRINCIPAL AMOUNT OUTSTANDING	
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July 15 1977

...more offer



EUROPE'S FIRST jetfoil service will start tomorrow when Boeing jetfoil on charter to Green... makes its first crossing between London and Zeebrugge, Belgium.

Saab will spend £2.5m. to boost car sales in U.K.

BY TERRY DODSWORTH, MOTOR INDUSTRY CORRESPONDENT
SAAB the Swedish car manufacturer is injecting £2.5m. into its U.K. distribution company in an attempt to halt the fall in sales which it has suffered in the last 18 months.

Timber terminal planned for Sheerness expansion

BY OUR SHIPPING CORRESPONDENT
A FOREST products terminal is to be established at Sheerness as part of a £2m. development by the Medway Ports Authority. Work on the terminal, which is the spin-off of a long-term contract with Combi Shipping of Sweden, should begin this summer after completion of car ferry and ro-ro facilities.

Employers take teenage truants

By Michael Dixon, Education Correspondent
MANY EMPLOYERS were committing "a crime against society" by illegally engaging older teenagers playing truant from school.



HOME OIL COMPANY LIMITED

Notice of Partial Redemption of Debentures

To the Holders of U.S. \$25,000,000 9 1/4% Debentures due July 1st, 1986 of Home Oil Company Limited.
NOTICE IS HEREBY GIVEN that, pursuant to the provisions of the Trust Indenture bearing formal date July 1st, 1976 between Home Oil Company Limited (herein referred to as "Company") and Montreal Trust Company (herein referred to as "Trustee") providing for the creation and issue of Debentures of the Company, U.S. \$1,000,000 principal amount of 9 1/4% Debentures due July 1st, 1986 of the Company bearing the undermentioned distinguishing numbers, namely:

Table with columns for Debenture numbers and values. Includes a list of numbers from 00034 to 02535.

have been selected by the Trustee by lot in an appropriate and fair manner on the 13th day of May, 1977 for sinking fund purposes only and that such Debentures will therefore be redeemed on the 1st day of July, 1977 in lawful money of the United States of America in the principal amount thereof together with interest accrued thereon upon presentation and surrender of the said Debentures together with all unexercised coupons appertaining thereto failing which the amount of the missing unexercised coupons will be deductible from the principal amount due for payment. Presentation and surrender shall be made at:

The Canadian Bank of Commerce Trust Company 2 Exchange Place New York, New York, 10005, U.S.A. Canadian Imperial Bank of Commerce 2 Lombard Street London, EC3P 3EU, England Canadian Imperial Bank of Commerce Bockenheimer Landstrasse 51-53 D-6000 Frankfurt am Main, West Germany

Canadian Imperial Bank of Commerce 19 Avenue Montaigne 75008 Paris, France Banque Internationale a Luxembourg S.A. 2 Boulevard Royal Luxembourg, The Grand Duchy of Luxembourg

NOTICE IS ALSO HEREBY GIVEN that in accordance with the terms of the said Trust Indenture all such Debentures called for redemption and not presented and surrendered on July 1st, 1977 shall not be considered as outstanding, interest upon such Debentures shall cease from and after such date and coupons for interest to accrue after such date shall become null and void.

DATED at the City of Calgary, Alberta, Canada, this 18th day of May, 1977.

HOME OIL COMPANY LIMITED By Montreal Trust Company, Trustee

All of these Securities have been sold. This announcement appears as a matter of record only.

\$100,000,000

Tenneco International N.V.

7 3/4% Guaranteed Debentures Due May 15, 1987

Payment of principal, premium, if any, and interest unconditionally guaranteed by

Tenneco Inc.

- MORGAN STANLEY INTERNATIONAL CREDIT SUISSE WHITE WELD
COMMERZBANK SWISS BANK CORPORATION (OVERSEAS)
S.G. WARBURG & CO. LTD.
ALGEMENE BANK NEDERLAND N.V. A.E. AMES & CO. AMEX BANK AMSTERDAM-ROTTERDAM BANK N.V.
ANDRESENS BANK A/S ARNHOLD AND S. BLSICHROEDER, INC. ASTAIRE & CO. BACHE HALSEY STUART INC.
BANCA COMMERCIALE ITALIANA BANCA DEL GOTTARDO BANCA DELLA SVIZZERA ITALIANA
BANCA NAZIONALE DEL LAVORO BANCO DI ROMA BANK OF AMERICA INTERNATIONAL
THE BANK OF BERMUDA BANK GUTZWILLER, KURZ, BUNGENER (OVERSEAS) BANK OF HELSINKI
BANK JULIUS BAER INTERNATIONAL BANK LEU INTERNATIONAL LTD. BANK MEES & HOPE NY
THE BANK OF TOKYO (HOLLAND) N.V. BANQUE BRUXELLES LAMBERT S.A.
BANQUE FRANCAISE DU COMMERCE EXTERIEUR BANQUE FRANCAISE DE DEPOTS ET DE TITRES
BANQUE GENERALE DU LUXEMBOURG S.A. BANQUE DE L'INDOCHINE ET DE SUEZ
BANQUE INTERNATIONALE A LUXEMBOURG S.A. BANQUE LOUIS-DREYFUS BANQUE NATIONALE DE PARIS
BANQUE DE NEUFILIE, SCHLUMBERGER, MALLET BANQUE DE PARIS ET DES PAYS-BAS
BANQUE DE PARIS ET DES PAYS-BAS (SUISSE) S.A. BANQUE POPULAIRE SUISSE S.A. LUXEMBOURG
BANQUE ROTHSCHILD BANQUE DE L'UNION EUROPEENNE BANQUE WORMS BARCLAYS, KOL & CO. N.Y.
BARING BROTHERS & CO. BAYERISCHE HYPOTHEKEN-UND WECHSEL-BANK BAYERISCHE LANDESBANK
BATERISCHE VEREINSBANK JOH. BERENBERG, GOSSLER & CO. GIROCENTRALE BERGEN BANK
BERLINER HANDELS- UND FRANKFURTER BANK BLYTH EASTMAN DILLON & CO.
BREISACH PINSCHOFF SCROELLER BROWN HARRIMAN & INTERNATIONAL BANKS LTD.
CAISSE DES DEPOTS ET DE CONSIGNATIONS JAMES CAPEL & CO. CAZENOVE & CO.
CHRISTIANIA BANK OG KREDITKASSE CLARIDEN BANK
COMPAGNIE DE BANQUE ET D'INVESTISSEMENTS (UNDERWRITERS) S.A. CONTINENTAL ILLINOIS
COUNTY BANK CREDIT COMMERCIAL DE FRANCE CREDIT INDUSTRIEL D'ALSACE ET DE LORRAINE
CREDIT INDUSTRIEL ET COMMERCIAL CREDIT LYONNAIS CREDIT DU NORD
CREDITANSTALT-BANKVEREIN CREDITO ITALIANO (UNDERWRITERS) S.A. DAIWA EUROPE N.Y.
RICHARD DAUS & CO. BANKIERS DBS-DAIWA SECURITIES INTERNATIONAL DELBRUCK & CO.
DEN DANSKE BANK DEN NORSKE CREDITBANK DEUTSCHE BANK DEUTSCHE GIROCENTRALE
DEWAAL & ASSOCIES INTERNATIONAL S.C.S. DILLON, READ OVERSEAS CORPORATION
DOMINION SECURITIES DRESNER BANK EFFECTENBANK-WARBURG EUROCAPITAL S.A.
EUROMOBILIARE S.P.A. EUROPEAN BANKING COMPANY EUROTRADING FINACOR
COMPAGNIA EUROPEA INTERMOBILIARE EUROPEAN BANKING COMPANY EUROTRADING FINACOR
FIRST BOSTON (EUROPE) ROBERT FLEMING & CO. GEPINA GENOSSENSCHAFTLICHE ZENTRALBANK AG
GIROCENTRALE UND BANK DER OSTERREICHISCHEN SPARKASSEN GOLDMAN SACHS INTERNATIONAL CORP.
GREENSHIELDS HAMBROS BANK HANDELSBANK N.V. (OVERSEAS) R. HENRIKSSON JR. BANK
HEITSCHE & CO. INTERNATIONAL HESSISCHE LANDESBANK HILL SAMUEL & CO. E. F. HUTTON INTERNATIONAL
IBJ INTERNATIONAL ISTITUTO BANCARIO SAN PAOLO DI TORINO JARDINE FLEMING & COMPANY
KANSALLIS-OSAKE-PANKKI KIDDER, PEABODY INTERNATIONAL EJOBNHAVNS HANDELSBANK
KLEINWORT, BENSON KREDITBANK N.V. KUHN, LOEB & CO. INTERNATIONAL
K VAN LANSCHOT BANKIERS LAZARD BROTHERS & CO. LLOYDS BANK INTERNATIONAL
LOEB RHOADES INTERNATIONAL LAZARD BROTHERS & CO. LONDON MULTINATIONAL BANK (UNDERWRITERS)
MANUFACTURERS HANOVER McLEOD, YOUNG, WEIR & COMPANY MERCK, FINCK & CO.
MERRILL LYNCH INTERNATIONAL & CO. E. METZLER SEEL, SOHN & CO. MITSUBISHI BANK (EUROPE) S.A.
SAMUEL MONTAGU & CO. MORGAN GRENPELL & CO. NEDERLANDSCHE MIDDENSTANDBANK N.V.
NEDERLANDSE CREDITBANK N.V. NESBITT, THOMSON NEUBANK
THE NIKKO SECURITIES CO. (EUROPE) LTD. NOMURA EUROPE N.Y. NORDEUTSCHE LANDESBANK
SAL. OPPENHEIM JR. & CIE. ORION BANK OSTERREICHISCHE LANDESBANK
PAINE, WEBBER, JACKSON & CURTIS SECURITIES PETERBROECK, VAN CAMPENHOUT, KEMPEN S.A.
PICTET INTERNATIONAL PIERSON, HELDRING & PIERSON N.Y. PKBANKEN POSTIPANKKI
PRIVATEBANKEN RABOMERICA INTERNATIONAL BANK N.V. ROTHSCHILD BANK AG
N. M. ROTHSCHILD & SONS ROWE & PITMAN, HURST-BROWN SALOMON BROTHERS INTERNATIONAL
J. HENRY SCHROEDER WAGG & CO. SCHROEDERS & CHARTERED SHIELDS MODEL ROLAND
SENGER & FRIEDLANDER SKANDINAVISKA ENSKILDA BANKEN SLAVENBURG OYENS & VAN EGGHEN N.Y.
SMITH BARNET, HARRIS UPHAM & CO. SOCIETE BANCAIRE BARCLAYS (SUISSE) S.A.
SOCIETE GENERALE SOCIETE GENERALE ALSACIENNE DE BANQUE SOCIETE GENERALE DE BANQUE S.A.
SOCIETE PRIVEE DE GESTION FINANCIERE SOCIETE SEQUANAISE DE BANQUE STRAUSS, TURNBULL & CO.
SUMITOMO FINANCE INTERNATIONAL SUN HUNG KAI INTERNATIONAL SVENSKA HANDELSBANKEN
TRADE DEVELOPMENT BANK OVERSEAS INC. UNION BANK OF FINLAND UNION BANK OF NORWAY
UNION BANK OF SWITZERLAND (SECURITIES) UNITED OVERSEAS BANK S.A. GENEVA
VEREINS-UND WESTBANK J. VONTOBEL & CO. H. M. WARBURG-BRINCKMANN, WITZ & CO.
WESTDEUTSCHE LANDESBANK WHITE, WELD & CO. WILLIAMS, GLYN & CO.
WOBACO INVESTMENTS WOOD GUNDT YAMAICHI INTERNATIONAL (EUROPE)
May 25, 1977.

INTERNATIONAL FINANCIAL AND COMPANY NEWS

OLIVETTI SPA

Back in the black

BY PAUL BETTS

ROME, May 30.

OLIVETTI SPA, the parent company of the Olivetti group, reported today a profit of just over 1.1bn. (about £700,000) as against losses of £8.6bn. the previous year.

As regards consolidated group turnover, this increased by 31.5 per cent. during the first four months of the year to £1,126.5bn.

spokesman said that group debt turnover rose to 200bn in 1976, mainly due to the increase in the Lira value of dollar debt.

BMW POLICY

Profits take precedence

BY GUY HAWTIN

FRANKFURT, May 30.

BAYERISCHE MOTOREN WERKE, of BMW cars and motorcycles fame, is looking forward to its third good year in a row.

models has no desire to become a mass motor producer. Herr von Kuenheim told the Press conference: "We are not concerned so much with market share as being a profitable business."

Dr. Erich Haiber, the financial director, pointed out that in relation to unit terms, exports rose by 22 per cent. to 138,602 vehicles for the first time exports accounted for more than 50 per cent. of sales.

from enthusiasts both at home and abroad. Last year, motorcycle production went up by 10 per cent to 22,300 units, of which 70 per cent were exported.

Twists in Abercom's offer for Protea

By Richard Rolfe JOHANNESBURG, May 30. THE ABERCOM offer to Protea, which is developing into one of the hardest fought battles in South Africa since the 200-million Rand takeover battle in 1974, has taken a number of interesting turns over the past week-end.

The action has hotted up since Abercom's original announcement of its bid of 4.25p for 100 Protea shares on May 4 and with the offer documents scheduled for release in the middle of June, it seems likely to stay on the boil.

Predictably enough, Protea has dismissed the participation preference shares as "junk money" indicating that they are worth 70 cents rather than the 50 cents Protea shares have moved up to 74 cents, when they are well ahead of Abercom's ordinary share alternative, currently worth 64 cents per Protea share with Abercom at 195 cents.

Ambiguously

Meanwhile Protea, in a ambiguously worded announcement, says it has sold "certain" of the assets of its subsidiary companies, the Steynerville Centre and Alex Hanley, to Stewart and Alex For, approximately R.4.5m.

NOTICE OF REDEMPTION To the Holders of

APCO INTERNATIONAL N.V.

6% Convertible Subordinated Bonds Due 1989

(Convertible on and after September 30, 1977, into Common Stock of Apco Oil Corporation)

Conversion right terminates on June 29, 1977

NOTICE IS HEREBY GIVEN that, pursuant to Section 3.01 of the Indenture, dated as of March 15, 1969, as amended by Supplemental Indenture dated as of December 1, 1970, between Apco International N.V., a corporation duly organized and existing under the laws of the Netherlands Antilles, and domiciled in Curaçao, and Marine Midland Bank (formerly Marine Midland Grace Trust Company of New York), a banking organization duly incorporated and existing under the laws of the State of New York, Trustee, the Company has elected to exercise its option to redeem and will redeem on June 30, 1977, all of the Company's 6% Convertible Subordinated Bonds Due 1989 (the "Bonds") then outstanding under the Indenture.

TERMS OF REDEMPTION:

Redemption Date, June 30, 1977.

Redemption Price. The redemption price at which Bonds will be redeemed is equal to the principal amount thereof plus a premium of 2% of such principal amount, together with accrued and unpaid interest thereon to the Redemption Date in the amount of \$1.50 for each \$1,000 principal amount of Bonds, making a total of \$1,062.50 payable on June 30, 1977, for each \$1,000 principal amount Bond.

Redemption Procedure. The payment of the amount to be received upon redemption will be made by the Company at Marine Midland Bank, at its Corporate Trust Department, 140 Broadway, 12th floor (if hand delivered) or P.O. Box 1749, Church Street Station, New York, New York 10008 (if mailed) or at its London office at 34 Moorgate, London EC2R 6JR, England or at the principal office of S. G. Warburg & Co. Limited, 20 Green Street, London EC2P 2EJ, England, or at the offices of Banque Internationale à Luxembourg S.A., Boulevard Royal 2, Luxembourg, upon presentation and surrender of such Bonds, with all coupons appertaining thereto maturing after June 30, 1977, at any time on or after the Redemption Date.

TERMS OF CONVERSION:

Conversion Price. The principal amount of any Bond may be converted at any time prior to the close of business on the business day (at the place where the Bond is delivered for conversion) next preceding the Redemption Date, June 30, 1977, at the option of the holder thereof, into fully paid and non assessable shares of Apco's Common Stock at a conversion price of \$32.39 per share. Each \$1,000 Bond is, therefore, convertible into 30.87 shares of Apco's Common Stock (calculated to the nearest 1/100 of a share). Cash will be paid in lieu of fractional shares.

Price of Common Stock. The last sale of Apco's Common Stock as reported on the New York Stock Exchange's consolidated transactions reporting system on May 24, 1977 was \$44 3/4 per share. Thus, for example, if a holder of a \$1,000 Bond had converted such Bond at the conversion price of \$32.39 per share of Apco's Common Stock, the aggregate market value of the 30 shares of Apco's Common Stock received upon such conversion, based on such last sales price, would have been \$1,351.25. Such value, however, is subject to change depending on changes in the market value of Apco's Common Stock.

Adjustments. No fractional shares of Apco's Common Stock will be issued upon the conversion of any Bond or Bonds. If more than one Bond is surrendered for conversion at the same time by the same holder, the number of full shares issuable upon the conversion thereof will be computed on the basis of the aggregate principal amount of Bonds so surrendered. If a conversion results in a fraction of a share, the Company will, in lieu of delivering such fractional share, adjust such fractional interest by payment to the holder of such surrendered Bond or Bonds of an amount in cash equal (computed to the nearest cent) to the current market value of such fractional interest (computed on the basis of the last reported sales price regular way of shares of Apco's Common Stock on the New York Stock Exchange prior to the date of conversion).

No payment or adjustment will be made upon any conversion on account of any interest accrued on Bonds delivered for conversion or on account of any dividends on Apco's Common Stock delivered upon such conversion.

Procedure for Conversion. In order to exercise the conversion privilege, the holder of any Bond to be converted must deliver such Bond, with all unexpired coupons appertaining thereto, to the Company at one of the offices set forth below, accompanied by written notice to the Company that the holder effects to convert such Bond by exchanging it for shares of Apco's Common Stock and stating therein the name or names of the person or persons (with address) in which the certificate or certificates for shares of Apco's Common Stock which are deliverable on such conversion shall be registered.

The Company will pay any and all documentary stamp or similar taxes payable to the United States of America or any State or political subdivision thereof in respect to the delivery of shares of Apco's Common Stock on conversion of Bonds and any and all documentary stamp or similar taxes payable to the United States of America or any State or political subdivision thereof in respect to the delivery of Bonds to the Company upon conversion of Bonds; provided, however, that the Company will not be required to pay any tax which may be payable in respect of any transfer involved in the delivery of shares of Apco's Common Stock in a name other than that of the owner of the Bonds to be converted and no such delivery shall be made unless and until the person requesting such delivery has paid to the Company the amount of any such tax or has established to the satisfaction of the Company, that such tax has been paid.

The method of delivery of Bonds to the Company is at the holders' option and risk but, if by mail, registered or certified mail is suggested:

- Marine Midland Bank By Mail: Corporate Trust Department P.O. Box 1749 Church Street Station New York, New York 10008 By Hand: Corporate Trust Department 140 Broadway, 12th Floor New York, New York

- S. G. Warburg & Co. Limited 20 Green Street London, EC2P 2EJ, England Banque Internationale à Luxembourg, S.A. Boulevard Royal 2 Luxembourg

Marine Midland Bank 34 Moorgate London, EC2R 6JR England

Effective Date of Conversion. Each conversion of a Bond will be deemed to have been effected immediately prior to the close of business on the date on which the written notice of election to convert is received by the Company and the Bond has been delivered as set forth above, and at such time the rights of the holder of such Bond as such holder will cease and the person or persons in whose name or names any certificate or certificates for shares of Apco's Common Stock are issuable upon conversion will become the holder or holders of record of the shares represented thereby; provided, however, that if the Company does not convert such Bond for any reason, the holder of such Bond will not cease to have rights as a holder of such Bond.

POTENTIAL LIQUIDATION OF APCO:

In the Apco Oil Corporation Annual Report 1976, sent to all holders of record of Apco's Common Stock on April 6, 1977, the letter of the Chairman and the President of Apco contained therein stated in part:

"In February of 1976, the Board of Directors tentatively concluded, after considering the possible liquidating value of the principal assets and the estimated results of the continuing operation of its business, that the liquidation of Apco would be in the best interest of all of its stockholders. The Board instructed management to begin negotiations with potential buyers for the sale of Apco's properties, and to begin preliminary work on the preparation of a plan of liquidation and the related heavy materials.

Pursuant to these directives, Apco's management conducted discussions with a number of potential buyers during 1976. In December, the Board of Directors reviewed the progress of these discussions. At this meeting, the Board instructed management to pursue discussions with potential buyers with all interested parties with a view to the formulation of a plan of liquidation for presentation to the stockholders at the earliest possible date.

At Apco's Annual Meeting of Stockholders held on May 18, 1977, Apco's President told the stockholders that it was still the opinion of the Board of Directors that the liquidation of Apco was in the best interest of all stockholders. He also announced that Apco hopes to conclude its negotiations in the near future by entering into agreements for the sale of the principal assets of Apco, all such agreements will be conditional upon the approval of a formal plan of liquidation by the stockholders at a meeting which Apco tentatively plans to be in a position to announce prior to mid-year.

Apco is unable to state at the present time what the possible liquidating value of shares of Apco's Common Stock may be, nor can Apco make any estimates of the ranges of such value while negotiations for the sale of the various properties are still underway.

The Company suggests that holders of Bonds consider their own tax advisers regarding the tax treatment applicable to them from the conversion of the Bonds into Apco's Common Stock or the redemption of the Bonds.

APCO INTERNATIONAL N.V.

By CURAÇAO CORPORATION COMPANY N.V. Managing Director

May 31, 1977

Perstorp sees Kr55m. this year

By William Dullforce

STOCKHOLM, May 30. PERSTORP, THE SWEDISH chemicals and plastic concern, increased earnings by 71 per cent. and sales by 25 per cent. during the first eight months of its financial year, ending April 30.

As predicted, the second four-month period showed a slowdown in the profit growth, with pretax earnings of Kr20m. (£2.67m.) against Kr28m. (£3.67m.) in the first period.

The four summer months are usually the weakest and the forecast for the year ending August 31 is a pretax profit of Kr55m. compared with Kr57m. for 1976-77 to give net adjusted earnings per share of Kr24 against Kr18. Turnover is expected to increase from Kr775m. to Kr920m. (£127m.).

During the second four months Perstorp continued to reinforce its international marketing position by takeovers. It made its biggest purchase so far when it acquired the pentacythritol manufacturing plant of Pan American Chemicals in Toledo, Ohio. The Swedish concern will invest Kr25m. over the next two years in this factory, which will have an annual capacity of 15,000 tons on completion.

Perstorp's European development company, bought for Kr6m. Synthecolor, in Paris, which included a half share in Synthecolor International, Belgium, expanding its stake in the field of additives for the plastic processing industry.

The concern's liquid assets, which amounted to Kr55m. at the beginning of the year, have declined somewhat, but are still regarded as sufficient.

Latin America fund plan

By Hugh O'Shaughnessy

A SPECIAL guarantee fund to facilitate the development of Latin American countries to the capital markets of the developed world which would be administered by the Inter-American Development Bank was suggested yesterday by Sr Antonio Ortiz Mensa, president of the Bank.

Sr Ortiz Mensa was speaking at the inaugural session of the meeting of the Bank's board of governors held in Guatemala City. The fund was first suggested by the Bank to the International Monetary Fund and the World Bank in 1975.

The Bank's president called for a three-point plan to be agreed between the developed countries and the countries of Latin America with the aim of consolidating Latin American growth and strengthening the credit economic co-operation.

It should, he said, include agreement on commodities to cover regular supply at stable prices, encourage public and private transfers of capital to the region.

Sr Ortiz Mensa reported that the Bank was widening its concept of complementary financing and seeking to interest not only private banks in cooperative ventures with the IDB but also insurance companies, pension funds and trust funds in such arrangements.

BANKS IN SAUDI ARABIA

A one-year deadline

BY ROD NEWMAN IN JEDDAH AND ANTHONY McDERMOTT IN LONDON

THE SAUDI ARABIAN government yesterday decreed for the first time a deadline of one year for the construction of a new foreign banks in the Kingdom.

Following a cabinet decision on Sunday, it was announced that all foreign banks had to sell a majority of their ownership to Saudi nationals.

The decree, which has still to be approved by King Khalid, coincided with the approval of the draft construction of a new Saudi-French bank to be formed by converting the operations of the Banque de l'Indochine et de Suez into a Saudi joint-stock company, with Saudi shareholders taking 60 per cent.

Since 1976, the Saudi Arabia Monetary Agency (SAMA) which acts as a central bank, has been increasing the pressure for Saudi majority participation. That year the National Bank of Pakistan became Bank al-Jazira with a 60 per cent Saudi holding. However, yesterday's decree reflects increasing nervousness with which the conservative Saudi monetary authorities have been watching the closure of two banks in the UAE as a result of credit difficulties.

Dr. Abdul Aziz Khawater, the temporary Information Minister, said on the official radio yesterday that "this is another step in the government programme to transform all foreign banks working in the Kingdom into Saudi banks, with Saudi citizens holding a majority of the shares, under the system applied to Saudi banks and Saudi shareholding companies." Several

other banks have been negotiating 60-40 arrangements with the Saudi government, and it is believed that only Citibank is resisting SAMA's directives. One banking source believed that the transformation of foreign banks into local companies would, in fact, expand business because they would then be able to increase the number of branches outside the three main cities to which they are confined.

Two foreign banks in Saudi Arabia—the Algemem Bank Nederland and the National Bank of Pakistan—have already come under Saudi control voluntarily, but at least seven other foreign banks have yet to make the change-over. These include the

British Bank of the Middle East, a subsidiary of the Hong Kong Shanghai group, which has had a senior executive working for some months exclusively on the details of a proposed Anglo-Saudi bank, and which is understood to have been haggling over likely candidates for the new bank's board of directors. Other foreign banks which must come under Saudi control within the stipulated one-year period—officially stated as operating in the Kingdom—include the First National City Bank, Banque de Caire, Banque du Liban et d'Orient Mer, the Arab Bank of Jordan, Bank Mellat of Iran and the United Bank of Karachi.

Belgian investment

BY DAVID BUCHAN BRUSSELS, May 30.

THE PROGRAMME of the new four-party Belgian coalition government gives as one of its top priorities greater public investment in the economy.

This is largely a concession by caretaker Premier Leo Tindemans to his new Socialist partners. But members of the outgoing Tindemans Government have taken great exception to suggestions that foreign investors are pulling out of Belgium and in particular to a recent U.S. Chamber of Commerce study of American companies.

The present Secretary of State for Flemish Economic Affairs, Mr. Marc Eyskens, has hit out at the survey—which canvassed 330 U.S. companies in Belgium and showed that because of high wage costs they only planned to invest \$1.75 billion (about £300m.) in the country in the next five years, compared with \$3.5 billion in the preceding five years.

Admitting that the "time is past when American allies went around the Belgian Wonderland generously pouring out investments," Mr. Eyskens claimed that the survey did not differentiate between the good industrial climate of Flanders in the north and the depressed French-speaking Walloonia in the south.

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HAVANA INTERNATIONAL BANK LIMITED LONDON (A fully-owned subsidiary of Banco Nacional de Cuba, La Habana) At a meeting of the shareholders of the above Bank in La Habana, Cuba on 12th May, 1977, it was resolved with effect from the 30th May, 1977, to increase the share capital of... HAVANA INTERNATIONAL BANK LIMITED, LONDON as follows: Authorised: £2,000,000 Paid Up: £2,000,000 Previous Capital: £3,000,000 New Capital: £4,000,000 Due to the expansion of the Bank, larger premises have been acquired at 20 IRONMONGER LANE, LONDON, E.C.2 and these will be officially opened in January, 1978. The Bank is actively engaged in various types of Eurocurrency transactions and offers a comprehensive banking service to all customers. Market Buildings, 20 Ironmonger Lane, London EC2R 7EE

INTERNATIONAL FINANCIAL AND COMPANY NEWS

JAPANESE COMPANIES

Ataka makes pre-merger Y130bn. loss for 1976-77

BY YOKO SHIBATA

TOKYO, May 30.

Ataka, the troubled trading firm, has reported a loss of Y130bn for the fiscal year ended March. This was the largest loss in its history since its founding in 1872. Ataka, which is preparing to merge with Itoh and Co., said the loss was due to a combination of factors, including a sharp decline in sales of its textile and paper divisions, and a heavy burden of debt. The firm's operating profit fell to Y1.9bn, down from Y12.5bn in the previous year. Ataka's loss was the largest among Japanese companies for the year, with the exception of the Y12bn loss reported by Yamanote. The firm's loss was primarily due to a sharp decline in sales of its textile and paper divisions, which were hit by a combination of factors, including a sharp decline in demand and a heavy burden of debt. The firm's operating profit fell to Y1.9bn, down from Y12.5bn in the previous year. Ataka's loss was the largest among Japanese companies for the year, with the exception of the Y12bn loss reported by Yamanote. The firm's loss was primarily due to a sharp decline in sales of its textile and paper divisions, which were hit by a combination of factors, including a sharp decline in demand and a heavy burden of debt.

The bank's internal reserves are also estimated at Y40bn, and the rest will come out of utilizing unrealised profits on stocks and securities.

C. Itoh and Ataka will sign the formal agreement to merge on Tuesday. Itoh, at present the fourth largest bank in Japan's third largest trading firm after Mitsubishi Corporation and Mitsuishi and Co.

Upturn for electricals

JAPAN'S MAJOR heavy electrical companies, Hitachi, Toshiba and Mitsubishi Electric, reported significant gains in profits for the fiscal year ended March reports.

Hitachi's profits were less healthy in the second half. An 8 per cent fall in the recurring profits in this period was attributed to poor sales of semi-conductors and inactive domestic demand for heavy electric machinery caused by delays in public investment. In the second half, Hitachi adjusted inventories, which reduced the rate of capital utilisation to 85 per cent from 91 per cent in the first half and exerted pressure on the company's fixed costs. Hitachi's net profit for the year as a whole increased by 55.5 per cent to Y30.4bn, while those in the second half showed a decline by 0.5 per cent over the first half of the year. Orders received for the year increased modestly, but 8 per cent, to Y1,387bn, but

AUSTRALIAN COMPANIES

Asbestos cement merger planned

BY JAMES FORTIN

SYDNEY, May 30.

CSR MAJOR SUGAR, mining, building products and pastoral group, proposes to sell its interests in asbestos cement for \$A19m to Australia's largest asbestos group, James Hardie Asbestos. The move has interesting trade practice implications because it would make Hardie the only manufacturer of consequence in asbestos building products.

Takeover developments

THREE COMPANIES which have made takeover bids chose today to announce an increase in their offer terms—and in each case gained the recommendation of the directors of the target companies, reports our Sydney correspondent.

Brewer, Tooth increased its offer for general producer group, Wright Heaton Associated Broadcasting Services agreed to pay more for Ballarat and Western Victoria Television. To amend the Act although legislation to amend the Act is currently before Federal Parliament. The amendments propose that

only mergers which involved a company in a monopoly position, or which would become a monopoly as a result of the merger, would be covered. Such mergers, which would appear to cover the Hardie deal, would remain prohibited subject to the right of the parties to apply for an authorisation.

But Hardie and CSR claim that the deal—described as a merger—would serve the interests of the consumer and the building industry to general. Hardie has already submitted the details to the Trade Practices Commission seeking a clearance for the purchase.

CSR and Hardie maintain the market is not confined to asbestos cement but includes alternative materials, to which asbestos' concept has long ground.

It has applied under the terms of the existing Trade Practices Act although legislation to amend the Act is currently before Federal Parliament. The amendments propose that

Builders' sales lack lustre

JAPAN'S top three construction companies have turned in lack lustre results for the second year running and are not counting on much improvement until 1978, reports Douglas Ramsey.

Taisei Corporation, Shimizu Construction and Ohbayashi-Gumi all posted insignificant sales increases (respectively up 0.1 per cent, 8.1 per cent and 0.3 per cent) thus, the damage inflicted by recession, which resulted in severe drops in sales in fiscal 1976, has persisted throughout 1977.

On profits account the construction companies did rather worse than the year before. Although Shimizu managed to increase its net profit by 1.1 per cent to Yen 10.5bn, the two other companies did not fare as well. At Taisei, profits after tax for the year to March amounted to Yen 10.7bn, down 17.8 per cent, partly because its longer order book, which led the company put off the worst effects of recession until 1978.

Stelux in transition

BY DANIEL NELSON

HONG KONG, May 30.

THE UPHEAVALS in the world watch industry have hit Stelux in its major markets (led by the United States) rather than by spicing sales over a longer period. In so doing, margins have been cut very fine indeed.

Profits fell despite good performance from the property company, Mid Son, in which Stelux has a 51 per cent interest, and Hong Kong Metropolitan Bank (82 per cent)—both acquired because of recognition of the need to diversify—and contrasted with Chairman Wong Chi-Liang's statement last year that "the outlook for 1977 is bright and an increase in net profit of about 50 per cent is quite within the group's reach. (A post-tax profit of HK\$41.8m was made for the year to March 1976—up from HK\$39.5m.) Rising costs in Hong Kong, which have led some manufacturers to talk of a preference for expansion in Taiwan and South Korea made HK\$50m, a more widely expanded profit forecast."

Falling prices

The fall in profits was attributed to falling prices for solid state and conventional watches and higher manufacturing and marketing costs. A company source pointed out that Stelux was now an integrated rather than a component group and that "the cost of effecting the transition has been higher than we expected." A considerable amount of working capital has been tied up in extending credit to dealers.

In the current state of the industry, disrupted by rapidly changing fashions and technology, aggressive new marketing techniques by-passing traditional channels, are cutting profits. Faced with the dilemma of what to do with large inventories, Stelux apparently decided to move stocks as rapidly as was

possible without causing disruption in its major markets (led by the United States) rather than by spicing sales over a longer period. In so doing, margins have been cut very fine indeed.

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Acquisitions

The nine months' profit fall is the first hiccup in Stelux's rapid rise from its origins as a watch strap producer 14 years ago. It went public in 1972 and has been steadily acquiring interests since—the share capital of its British distributor in 1973, providing a base for penetrating the EEC; a 70 per cent interest in Swiss watch case manufacturer Jean Vallon and, with a new issue of 3.8m shares watch dial manufacturer Metaleum; a design, technical services and sales outlet in Switzerland; full control of the electronic watchmakers Colex; and a 26 per cent interest in Bulova—last year—prompting Fortune magazine to describe managing director C. P. Wong as "perhaps the most powerful and progressive force in the international watch industry."

CAPITAL MARKETS

A wider crack in the door

BY JEFFREY BROWN

JAPAN continued to ensure for greater internationalisation of the Yen, the Japanese monetary authorities have opened the door to foreign borrowers another inch or two.

The Bank of Japan is to allow overseas borrowers to raise yen loans on the Japanese capital market than has hitherto been the case. No actual details have as yet been laid out but the Banque Française Commerce Exterior is to go to next month with an issue of Y20bn bonds.

To now foreign capital raised has been restricted to amounts of between Y10bn, and

Y12bn—with the exception of national borrowers. But even at this level the Bank of Japan has always kept a tight rein.

Recently Japanese internal demand for funds has been low with, for example, domestic industry peddling softly on capital projects. But it is equally clear that overseas demands for greater yen financing flexibility are beginning to have some impact.

Foreign borrowers have long cast envious eyes at the Japanese capital market. Rates of interest in Japan compare favourably with the most price efficient of the country's trade competitors. And the Yen is one of the strongest currencies (it has appreciated usefully against the U.S. dollar over the past 18 months).

At the same time interest rates in Tokyo are low in relation to those in major capital markets elsewhere in the world.

Honda Motor is apparently studying a plan to issue more American depositary receipts. It would not confirm a Tokyo Press report that it planned an ADR issue of \$25m in December by EDR (European Depositary Receipts) and ADR issues.

Extracts from the 1976 Statement to Shareholders by Mr D.K. Newbigging, Chairman, The Hongkong Land Company Ltd

“Excellent future prospects.”

Good Year for the Group

1976 was a good year for Hong Kong, for the commercial sector generally, and for your Group. We have prospered with our development plans, and the Group's earnings have again increased enabling the recommendation of a record dividend for 1976.

In the past year we have completed several major projects and announced the commencement of others. The Group will thus continue to have a steady flow of new developments coming to fruition which should ensure a continued growth of earnings with excellent future prospects for The Hongkong Land Group.

In Jakarta, Indonesia, a joint venture 15-storey office building, (30% owned), was completed in late 1976.

In Kuala Lumpur, Malaysia, work commenced in May, 1976 on a 19-storey office building of some 180,000 sq. ft. (50% owned). This building is expected to be completed by late 1978.

Macquarie House in Sydney, Australia (80% owned), the 20-storey building containing 100,000 sq. ft. of office space, remains fully let.



A model of Phase One of Chi Fu Yu House, the Group's new housing project on Hong Kong Island.

Residential Properties

The Group's portfolio of prime residential properties principally in the May Road area in Hong Kong's Mid-Levels, has remained fully let. Brankome, the 26-storey luxury apartment building of 94 units was completed in mid 1976, and was immediately fully let. In addition, work will shortly commence on the construction of new twin towers comprising 134 units on the site of Trugumar Mansions. This development is expected to be completed by late 1979.

Construction of the joint venture development of a residential scheme of 37 luxury units on a prime site in Stanley by Simia Enterprises Limited (50% owned) started in late 1976 and should be completed by mid 1978.

Property Trading

In September, 1976 we sold four Hong Kong residential developments for a total of \$25.9 million, thus releasing funds for investment in other areas, in particular the Central District.

In September, Government approval was received for the development of Chi Fu Yu House, the Group's \$75 million housing project in Pokfulam on Hong Kong Island. The project — a new township of some 17.5 acres — will provide 2,700,000 sq. ft. of residential accommodation in the form of 4,350 flats for middle income purchasers.

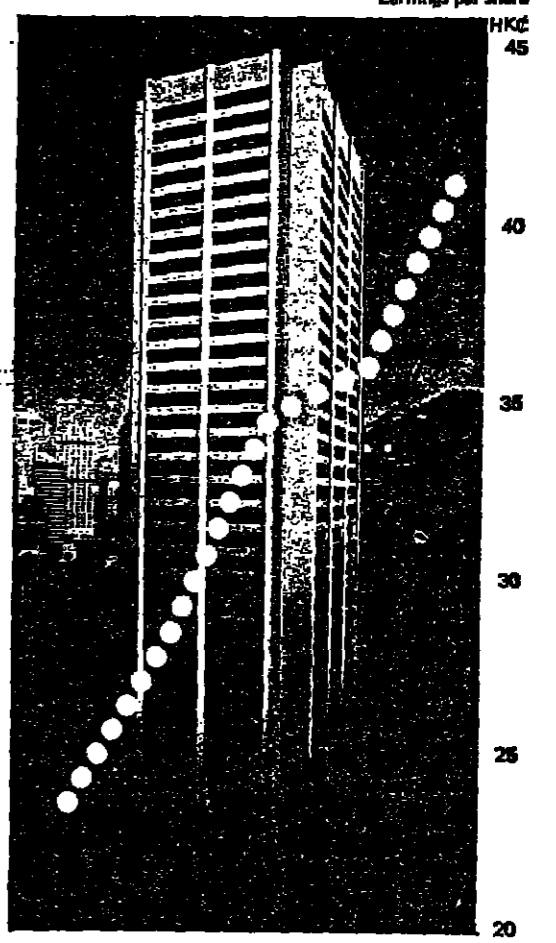
The marketing programme of Chi Fu Yu House was launched in December, and met a response of such proportions that all nine blocks comprising the first phase were immediately oversubscribed. Construction of the first phase should be completed by mid 1978, and the development is scheduled for completion in stages over the next six to eight years.



The 25-storey, 504 bedroom, Jakarta Mandarin Hotel is expected to open in 1978.

Hotels

The trading income from the Group's Hong Kong hotel interests improved considerably during 1976. The Mandarin, Hong Kong, operated by our subsidiary, City Hotels Ltd, continued to operate at a high rate of occupancy. The Excelsior, Hong Kong (49% owned), is now managed by a subsidiary and is operated in conjunction with the adjacent Hong Kong Convention Centre. The Oriental Hotel, Bangkok (49% owned), managed by Mandarin International Hotel Ltd (52% owned), had its new River Wing of some 350 rooms completed in 1976. The 504 room Mandarin Hotel (50% owned) was partially opened in September, as scheduled. In Indonesia, the Jakarta Mandarin (40% owned), also 504 rooms, is scheduled to open in late 1978.



Maxim's Caterers Limited (21% owned) once again returned a record result based on substantially increased turnover. This is attributable to the growth of business in existing outlets, and to further expansion by the opening of eleven new restaurants and fast food outlets.

Food Distribution

The Group's major food distribution interests, accounting for some 20% of the Group's profit, are maintained through subsidiaries operating within the Dairy Farm Group, which incorporates Fitzpatrick's. During 1976, trading was at a satisfactory level, with a continued growth pattern based on increased turnover and the opening of new retail outlets. A further two shopping centres will open soon, bringing the total number of supermarkets and shopping centres operating in Hong Kong to 22.

Aircraft catering activities have expanded throughout the region, and in Hong Kong the new aircraft catering building has recently been completed at a cost of some \$3.8 million. The main Dairy Lane store in Windsor House will be re-established in Marina House later this year.

Future Prospects

The completion of Alexandra House, Brankome, the Oriental Hotel's new wing and the Manila Mandarin Hotel, together with the acquisition of the P & O Building and an increased investment in the Excelsior Hotel, will ensure growth in future profits. The continuation of this pattern over the next few years should also be assured by the development of the remaining two phases of the Central District Redevelopment Scheme, the new Windsor House in Causeway Bay, the redevelopment of Trugumar Mansions, the Jakarta Mandarin Hotel, and Chi Fu Yu House in Pokfulam.

Looking to 1977, your Directors believe that earnings will show a further improvement, and we look forward with confidence to the future.

	1976	1975
Group profit after tax	25,200,000	21,700,000
Dividends	19,800,000	17,400,000
Shareholders' funds	382,400,000	358,600,000
Earnings per share	5.25p	4.5p
Dividends per share	4.13p	3.63p
Net assets per share	0.75	0.75

D.K. Newbigging Chairman
 Hong Kong 30 March 1977

The Hongkong Land Company Ltd
 Alexandra House, Hong Kong

SELECTED EURODOLLAR BOND PRICES			
MID-DAY INDICATIONS			
RIGHTS	offer	offer	offer
1. Australia 8 1/2% 1988	102.5	102.5	102.5
2. Australia 8 1/2% 1991	102.5	102.5	102.5
3. Australia 8 1/2% 1994	102.5	102.5	102.5
4. National 8 1/2% 1988	102.5	102.5	102.5
5. National 8 1/2% 1991	102.5	102.5	102.5
6. National 8 1/2% 1994	102.5	102.5	102.5
7. New Zealand 8 1/2% 1988	102.5	102.5	102.5
8. New Zealand 8 1/2% 1991	102.5	102.5	102.5
9. New Zealand 8 1/2% 1994	102.5	102.5	102.5
10. Norway 8 1/2% 1988	102.5	102.5	102.5
11. Norway 8 1/2% 1991	102.5	102.5	102.5
12. Norway 8 1/2% 1994	102.5	102.5	102.5
13. Sweden 8 1/2% 1988	102.5	102.5	102.5
14. Sweden 8 1/2% 1991	102.5	102.5	102.5
15. Sweden 8 1/2% 1994	102.5	102.5	102.5

US \$10,000,000

Floating Rate London-Dollar Negotiable Certificates of Deposit, due May, 1980.

THE TAIYO KOBE BANK, LTD.

LONDON

Credit Suisse White Weld Limited

Agent Bank

In accordance with the provisions of the Certificates, notice is hereby given that for the initial six months interest period from May 31 to November 30th, 1977, the Certificates will carry an interest rate of 3 1/2 per cent. The relevant interest payment date will be November 10th, 1977.

CONVERTIBLES	
American Express 4 1/2% '87	98
American Express 4 1/2% '90	98
American Express 4 1/2% '93	98
Bank of America 4 1/2% '87	98
Bank of America 4 1/2% '90	98
Bank of America 4 1/2% '93	98
Bank of Montreal 4 1/2% '87	98
Bank of Montreal 4 1/2% '90	98
Bank of Montreal 4 1/2% '93	98
Bank of Tokyo-Mitsubishi 4 1/2% '87	98
Bank of Tokyo-Mitsubishi 4 1/2% '90	98
Bank of Tokyo-Mitsubishi 4 1/2% '93	98
Bank of Westminister 4 1/2% '87	98
Bank of Westminister 4 1/2% '90	98
Bank of Westminister 4 1/2% '93	98
Bank of Yokohama 4 1/2% '87	98
Bank of Yokohama 4 1/2% '90	98
Bank of Yokohama 4 1/2% '93	98

tea market settling down again

PRICES are now levelling and there should be no notable moves either up or down for the next month or two...

U.S. may use surplus tin for buffer stock fund

THE CARTER Administration will seek congressional approval to use surplus tin from its strategic stockpile...

Further decline in coffee

COFFEE PRICES on the London terminal market ended at their lowest level for three weeks yesterday despite rallying in late trading...

U.K. MARKETING BOARDS Anti-cartel farmers win legal backing

IN A JUDGMENT handed down last week and almost ignored on this side of the Channel...

Japan dominates wool auctions

WEST AUSTRALIAN wool sales this week will depend only on the strength of overseas demand...

EEC extends Soviet fish deal

LICENCES allowing a limited number of Soviet, East German and Polish trawlers to fish inside the EEC's 200-mile limit...

Steel lobby

At the same time a contribution by the U.S. may well set a precedent for other countries...

Transition

The Wool Marketing Board is another monopoly Board, elected like the others by a two-thirds majority of wool producers...

PORT PROTEST

More than 500 East Anglian pig farmers plan to march on the local headquarters of Danes...

Producers seek big rubber stockpile

NATURAL RUBBER producing countries will press at next month's UNCTAD commodity talks for the establishment of a stockpile of more than 350,000 tonnes...

Sugar prices down again on pact collapse

THE EFFECTS of the collapse of the International Sugar Agreement talks last week are still being felt in the world...

Kind words

The implications of this ruling are bound to bring into question the survival of the Milk Marketing Boards in the United Kingdom...

COMMODITY MARKET REPORTS AND PRICES

Table with multiple columns listing commodity prices for various metals, grains, and other goods. Includes sub-sections for Base Metals, L.G. Index, and various agricultural products.

C.L.A. MANAGEMENT APPOINTMENTS

Have accepted instructions from clients. Market Leaders in Commodities, to provide suitable candidates for the following:

FLOOR TRADER £5-7,000 negotiable

The successful candidate will have had several years Trading experience, preferably floor, but the attitude and ability are regarded as being more relevant. Ref: 1095.

ACCOUNTS EXECUTIVE £8-10,000 + commission

Highly respected and rapidly expanding company wish to augment their existing team with a dynamic person. Successful candidates are unlikely to have had less than 5 years' experience. Ref: 1097.

TRAINEE TRADERS

Applications are invited from individuals with some relevant commercial experience who are interested in starting a career in this area of commerce. Ref: 2011.

NEW LOOK AT THE INTERNATIONAL SUGAR MARKET. Price fluctuations for the last two years have created a new era for this commodity in international markets.

CINEMAS (Contd.). COLUMBO, Curzon Street, W.1. 499 3737. GARDNER, Shaftesbury Avenue, W.1. 499 3737.

COCAOA. With the majority of Europe and America on holiday, cocoa prices are expected to be relatively stable.

MEAT/VEGETABLES. THE JAPANESE Government's stockpile of rice at the end of the 1977 marketing year on October 31 will rise 23 per cent.

SOYABEAN MEAL. The market was dull and listless as the U.S. and Communist markets were both closed.

JUTE. The market was dull and listless as the U.S. and Communist markets were both closed.

CLUBS. EVE 189 Regent Street, 7th Floor. The Great British Style.

Raciz International. A 32-page Report. Raciz International, Division of Ships, Appel & Walden, Inc.

EXHIBITIONS. DECEMBER HOUSE ANTIQUES FAIR. 12.30 p.m. - 5.30 p.m. 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st.

GRAINS. THE BALANCE - Very strong trading conditions were evident throughout the improved grain market mainly reflecting the holiday in the U.S. and most European countries.

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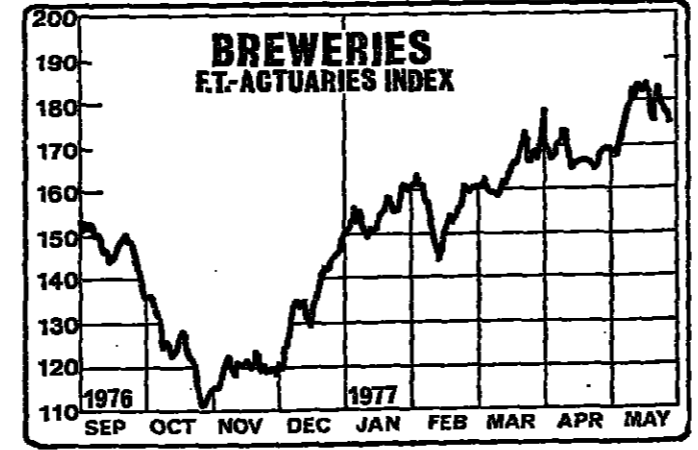
Canadian markets. All U.S. markets were closed yesterday to mark the Memorial Day. ALCAN plans new Quebec smelter. GHANA'S COCOA Marketing Board announced plans to establish large-scale coconut plantations in a bid to reduce the country's dependence on cocoa as the main foreign exchange earner.

STOCK EXCHANGE REPORT

Buyers reluctant and index recedes 5.3 more to 447.5 Gilts fall to £1 1/4—Gold Mines index jumps 8.4 to 118.9

Account Dealing Dates
First Declared Last Account Dealing Date
May 9 May 19 May 20 May 31

114 per cent, 1991, is to be issued at 94 with only 2p payable on application. Prior to the news, sentiment had continued to reflect the mood of dejection which came into being on Wednesday of last week and, with fresh orderings again finding the market unwelcome, mediums and longs had fallen another 1/4. When trading resumed after the usual recess, a further 1/4 point was lost and a little more in some cases before the market was trimmed slightly late in the evening. The variable coupon short was the outstanding event at the short end of the market, surprisingly, a 9 per cent rose to 7 3/4 and Farmhouse added a like amount to 130p on Thursday.



Burton moved against the dull trend in Stores, the Ordinary improving 1/4 to 7 3/4 and the 'A' 2 3/4 for a two-day loss of 1 1/2. Lyons eased 3/4 to 7 3/4, while Fitch Lovell, 5 1/2, and Unigate, 4 1/2, both closed 1/4 cheaper. Elfish shed 1/4 to 1 1/4 as Clifford's Dairies A, to 3 1/4. On the bid front, Fox's Biscuits shed 3/4 to 14 1/4 in sympathy with a modest improvement in Caravans from the lowest, closing 4 off at 180p, after 17 1/2, while Percy Bliton were the same amount easier at 15 1/2. The appointments of Sir William Harris to the Board made little difference to Fechey, 1 cheaper at 4 1/4. Overseas Traders moved into reverse, S, and W, Berksford dropped 8 to 19 1/2, while Steel Bros, remained on offer and lost 8 to 20 1/2.

Investment Trusts were idle and featureless and closed with a fairly lengthy list of losses following occasional small selling and lack of any institutional buying. Rothschild Investments were exceptionally 9 cheaper at 27 1/2. Of the new firm spots, Argo Investments improved 1/4 to 11 1/2. Charterhouse Group edged up 1/4 to 5 1/2 in Financials in front of to-day's interim results. York Trust closed fractionally better at 4 1/2; the price shown in our Saturday and Monday issues was incorrect.

Shell continued to give ground while following the general pattern of the market and closed 6 off at 53 1/2, after 53 1/2, but many other Oils resisted the trend. British Petroleum, for instance, drifted easier to 9 1/4 before recovering to close 1/4 off at 22 1/2. Despite the absence of U.S. inquiries, the New York market was closed for the holiday. Also unchanged were Royal Dutch, at 24 1/2, and Esso, at 12 1/2. Confirmation of the latest North Sea oil find made little impression on the speculative-oriented market. Oil Exploration remained under some pressure at 1 1/2, after 1 1/2, while Siebens (U.K.) gave up 1/2 to 12 1/2, after 11 1/2. Elsewhere, Burmah eased the turn to 7 1/2. Properties appeared to be under pressure, reacting to a report of an uptick in interest rates, the leaders showing a rallying tendency which left Land Securities the turn holder on the day at 37 1/2, after 37 1/2. The market closed with an early loss of 2 to close unchanged on balance at 8 1/2 and Great Portland halved an initial fall of 3 at a close of 24 1/2. Hasting's (U.K.) gave up 1/2 to 15 1/2, but Property Holdings remained dull at 26 1/2, down 6, reflecting overnight domestic

FINANCIAL TIMES STOCK INDICES
Table with columns: Index, May 29, May 30, May 31, % Change. Includes Government Securities, Industrial Ordinary, Gold Mines, etc.

HIGHS AND LOWS S.E. ACTIVITY
Table with columns: High, Low, Share Completion, etc. Lists various stocks and their price ranges.

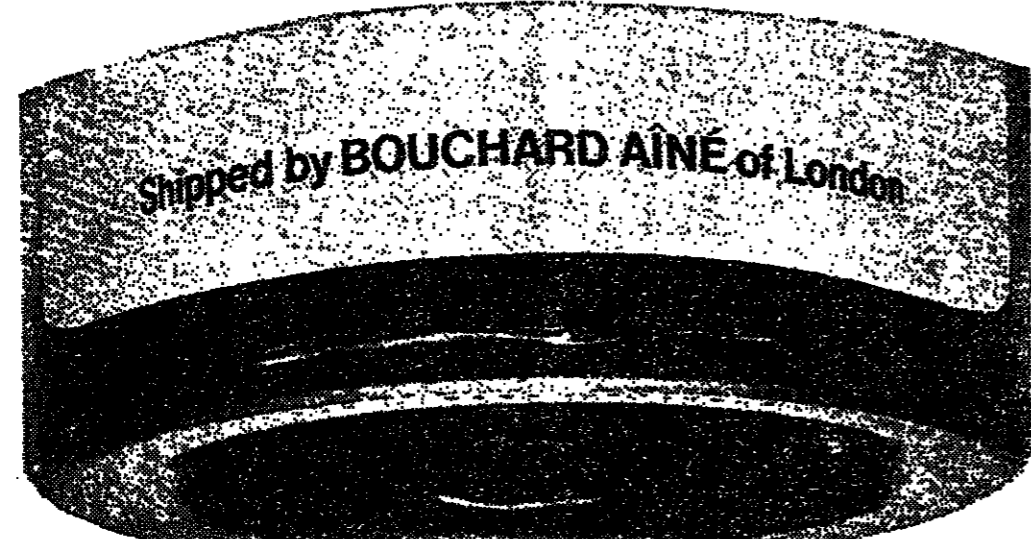
London-based Financials, however, were only a few pence harder, sentiment being adverse towards the sector as a result of U.K. equity market. Rio Tinto Zinc were 2 firmer at 22 1/2 and Gold Fields the same amount at 14 1/2. Coppers were usually better when changed despite the recent sharp fall in the metal price. Messima rose 4 to 14 1/2 and Mineros 2 to 13 1/2.

NEW HIGHS AND LOWS FOR 1977
Table with columns: Name, Price, Date. Lists new highs and lows for various stocks in 1977.

OPTIONS TRADED
Table with columns: Dealings, Last, Declared, Settlement, etc. Lists options traded on various stocks.

Discounts easier
In sympathy with the current downward trend of gilt-edged securities, Discounts drifted 1/4 to 1 1/4. Gillett Bros, lost 1/4 to 18 1/2 and Cater Ryder gave up 1/2 to 25 1/2, while Jessel Toybone and Smith St. Aubyn were both 3 cheaper at 8 1/2 and 8 1/2 respectively. Home Banks were hardly tested all day and closed unchanged at their pre-week-end levels. Wintrust receded 1/4 to 37 1/2 among Merchant Banks, where Hill Samuel held steady at 6 1/2, awaiting to-day's preliminary figures. Provident Financial shed 3/4 to 7 1/2 in full Hire Purchases. Interest in Insurances remained at a low ebb and prices generally drifted lower with the general trend. Phoenix declined 1/4 to 22 1/2 as did Legal and General, to 11 1/2, and Pearl, to 20 1/2. Buildings drifted lower with the general trend. Richard Costala gave up 1/4 to 20 1/2 as did Rawlings Bros, to 24 1/2, while Carvos and Magnet and Southern receded 1/4 to 37 1/2 and 14 1/2 respectively. O.C. Summers relinquished 1/4 to 2 1/2 on the poor results and Barratt Developments declined 1/4 to 37 1/2. F. J. C. Lilly, on the other hand, were marked up 3/4 to 3 1/2 on an investment recommendation and W. and J. Glossop edged forward a penny to 4 1/2 for a similar reason. Edward Jones at 13 1/2, up 1/4, were also helped by Press comment. Norwest Host held steady at 7 1/2 in front of to-day's preliminary results. Narrowly mixed Chemicals had 1 1/2 easier at 39 1/2, after 38 1/2, following a small turnover. Ahead of tomorrow's results. Carless

Gilts still dejected
A leading jobber summed up the day's proceedings in Gilt-edged with the remarks that there was no compulsion to buy either before or after the unexpected 8.20 p.m. announcement of the new partly-paid long tap issue; 2800m. of Treasury



What's in a name?
A name that's recognised can inspire awe, envy or, in this case, confidence. It's a name with a reputation for accepting only the best, and maintaining the highest standards. An assurance for the wine-buyer that his choice has been expertly selected and carefully shipped.

A very good wine reasonably priced. Distinguishing it from the ranks of all the rest. In other words, a name such as ours can sometimes be all the guarantee you need. Because when it says Bouchard Aine on the label, it says a lot for the wine.

read the small print first
Bouchard Aine
Burgundy specialists and shippers of fine wine
13 ECCLESTON STREET, LONDON SW1
*Aine denoting the eldest son of the family

RECENT ISSUES

EQUITIES
Table with columns: Issue Price, Amount, etc. Lists recent equity issues.

FIXED INTEREST STOCKS
Table with columns: Issue Price, Amount, etc. Lists fixed interest stocks.

"RIGHTS" OFFERS
Table with columns: Issue Price, Amount, etc. Lists rights offers.

ACTIVE STOCKS
Table with columns: Stock, Denomination, No., etc. Lists active stocks.

FT-ACTUARIES SHARE INDICES

These indices are the joint compilation of the Financial Times, the Institute of Actuaries and the Faculty of Actuaries

EQUITY GROUPS
Table with columns: Group, Index No., etc. Lists equity groups and their indices.

FIXED INTEREST PRICE INDICES
Table with columns: Index No., etc. Lists fixed interest price indices.